TABLE I.—MEASUREMENTS OF 50 ANCIENT BRITISH SKULLS, SUPPOSED TO BE OF MEN, 25 FROM LONG BARROWS AND 25 FROM ROUND BARROWS;—ARRANGED IN THE ORDER OF THE RELATIVE BREADTH.

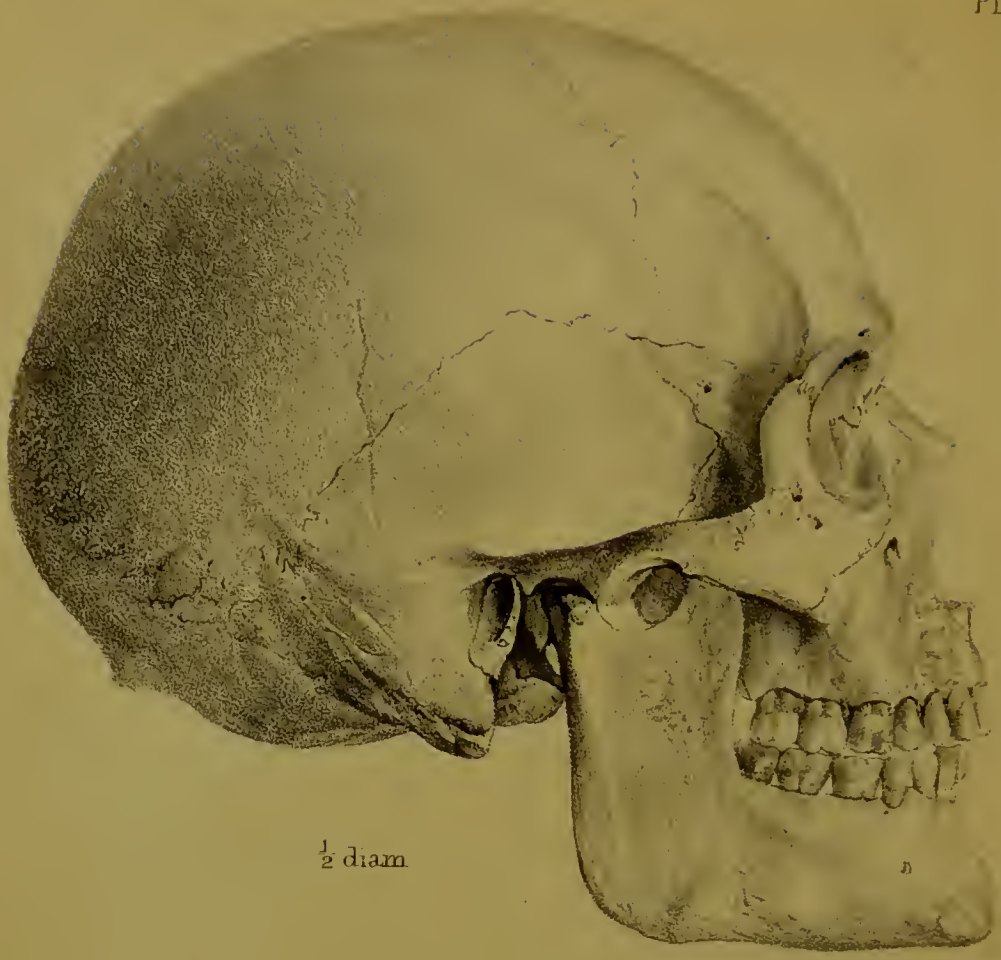
	DERIVATION OF SKULLS.		Probable Age.	I. Cubic Capacity.	II. Circumference.	III. Length.	IV. Breadth.	V. Height.	VI. Face. Length.	VII. Face. Breadth.	A. Breadth : Length = 1·00.	B. Height : Length = 1·00
	a. *Skulls from Long Barrows.*											
A.—SKULLS FROM LONG BARROWS. *I. DOLICHOCEPHALI. Sub-Dolichocephali.*	1. West Kennet, North Wiltshire.	Pl. 50.	35	92	21·2	7·7	5·2t	5·8	4·3	4·7	·67	·75
	2. Long Lowe, Staffordshire.	Pl. 33.	40	102	21·5	7·9	5·4p	5·9	4·8	5·2	·68	·74
	3. Tilshead, South Wiltshire.	179.	40	95	21·7	8	5·5t	5·6	. .	. .	·68	·70
	4. Littleton Drew, North Wiltshire.	58.	50	90	21	7·6	5·2p	5·7	. .	. .	·68	·75
	5. „ „ „	57.	55	92	21·1	7·7	5·4t	5·6	. .	. .	·70	·72
	6. Dinnington, W. R. Yorkshire.	188·1	30	110	21·8	8	5·6p	5·9	. .	5·2	·70	·73
	7. Tilshead, South Wiltshire.	181.	30	. .	. .	7·8	5·5p	5·7	. .	. .	·70	·73
	8. West Kennet, North Wiltshire.	137.	50	100	22·2	8	5·6t	5·7	. .	. .	·70	·71
	9. „ „	138.	30	95	21·2	7·7	5·5p	5·5	4·4	4·7	·71	·71
	10. Uley, Gloucestershire.	Pl. 5.	65	106	21·8	8	5·7p	5·5	4·3	5·2	·71	·68
	11. Rodmarton, Gloucestershire.	164.	50	112	21·9	8	5·7p	5·9	4·6	. .	·71	·73
	12. Littleton Drew, North Wiltshire.	Pl. 24.	45	93	21·8	7·7	5·6p	6	4·6	. .	·72	·78
	13. „ „	60.	50	. .	. .	7·6	5·5p	5·5	. .	. .	·72	·72
	14. „ „	61.	65	. .	. .	7·9	5·7p	. .	. .	. .	·72	
	15. Tilshead, South Wiltshire.	180.	55	. .	. .	7·5	5·4p	5·7	. .	. .	·72	·76
	16. Dinnington, W. R. Yorkshire.	2.	60	95	21·	7·5	5·4p	5·8	. .	5·4	·72	·77
	17. Rodmarton, Gloucestershire.	Pl. 59.	50	109	22·	7·9	5·7p	5·5	4·5	5·2	·72	·69
	18. „ „	163.	55	96	21·3	7·8	5·7t	5·6	4·4	5·4	·73	·71
	19. West Kennet, North Wiltshire.	136.	17	107	22·1	7·9	5·8p	5·5	. .	4 7	·73	·69
	20. Dinnington, W. R. Yorkshire.	3.	50	100	21·2	7·6	5·6p	6	. .	5·3	·73	·78
	21. Littleton Drew, North Wiltshire.	59.	15	. .	21·8	7·8	5·7p	. .	. .	. .	·74	
	22. Rodmarton, Gloucestershire.	166.	35	. .	22·2	7·8	5·8p	5·5	4·5	. .	·74	·70
	23. Nympsfield, „	150.	65	. .	21·8	7·7	5·7p	5·7	. .	. .	·74	·74
	24. „ „	149.	55	107	21·9	7·7	5·8p	5·7	. .	5·2	·75	·74
	25. Winterbourn Stoke, S. Wilts. (A.)	159.	25	93	20·6	7·3	5·5p	5·7	4.5	5·1	·75	·78
	Averages in cubic & linear Inches English.			99	21·6	7·7	5·5	5·7	4·5	5·1	·71	·74
	Av. in cubic Centim. & linear Millimeters.			1622	548	195	139	144	114	129		
	b. *Skulls from Round Barrows.*											
B.—SKULLS FROM ROUND BARROWS. *III. BRACHYCEPHALI. Sub-Brachycephali. II. ORTHO-*	1. Arras, E. R. Yorkshire.	Pl. 6.	30	98	21·1	7·5	5·6p	6·	4·9	5·1	·74	·80
	2. Kennet Hill, North Wiltshire.	11.	60	101	21·7	7·7	5·7t	6·2	5·	5·2	·74	·80
	3. Acklam, E. R. Yorkshire.	Pl. 31.	50	85	21·6	7·7	5·8p	5·7	4·9	5·2	·75	·74
	4. Morgan's Hill, Wiltshire.	Pl. 32.	70	97	21·4	7·6	5·7p	5·7	5·2	5·4	·75	·75
	5. End Lowe, Derbyshire.	Pl. 13.	40	. .	. .	7·2	5·6p	5·6	5·4	5·2	·77	·77
	6. Bincombe, Dorsetshire.	Pl. 57.	65	. .	21·	7·2	5·6t	5·3	5·	5·2	·77	·73
	7. Stonehenge, South Wiltshire.	99.	60	. .	22·3	7·7	6·	5·6	. .	. .	·78	·72
	8. Hay Top, Derbyshire.	Pl. 60.	60	109	21·8	7·4	5·9p	5·4	4·4	5·4	·79	·73
	9. Ballidon Moor, Derbyshire.	Pl. 1.	45	90	20·5	7·	5·6t	5·9	4·4	5·6	·80	·84
	10. Wilsford, South Wiltshire.	97.	55	95	21·2	7·3	5·9p	5·5	. .	. .	·80	·75
	11. Parsley Hay, Derbyshire.	Pl. 2.	55	88	21·2	7·4	6·p	5·6	4·7	5·4	·81	·75
	12. Green Gate Hill, N. R. Yorks.	Pl. 3.	40	88	20·	6·9	5·6t	5·3	4·4	5·2	·81	·76
	13. Juniper Green, Lothian.	Pl. 15.	50	. .	20·3	7·	5·8t	5·1	4·6	. .	·82	·72
	14. Green Lowe, Derbyshire.	Pl. 41.	35	107	21·5	7·5	6·2t	6·	4·7	. .	·82	·80
	15. Roundway, Wiltshire.	Pl. 43.	50	102	22·5	7·8	6·4p	5·3	5·6	5·7	·82	·68
	16. „ „	Pl. 42.	75	100	21·7	7·4	6·2p	5·7	4·7	5·3	·83	·77
	17. Wetton Hill, Staffordshire.	Pl. 12.	60	97	21·5	7·4	6·2p	5·5	4·8	5·4	·83	·74
	18. Codford, South Wiltshire.	Pl. 14.	40	82	20·	6·8	5·7p	5·1	4·4	5·3	·83	·75
	19. Stonehenge, „	98.	70	100	21·5	7·2	6·1t	5·8	. .	. .	·84	·80
	20. Lesmurdie, Banffshire.	Pl. 16.	60	. .	21·5	7·3	6·2t	5·2	4·4	. .	·85	·71
	21. Wetton Hill, Staffordshire.	Pl. 34.	40	. .	. .	7·	6·t	5·6	4·9	. .	·85	·80
	22. Gristhorpe, E. R. Yorkshire.	Pl. 52.	70	102	22·	7·4	6·3t	5·8	4·7	5·7	·85	·78
	23. Tosson, Northumberland.	Pl. 54.	70	103	21·2	7·1	6·1p	5·3	4·8	5·1	·85	·74
	24. Hitter Hill, Derbyshire.	Pl. 53.	70	100	20·4	6·8	5·9p	5·7	4·5	5·6	·86	·83
	25. Ulwell, Dorsetshire.	121.	70	. .	22·	7·4	6·5t	. .	. .	. .	·87	. .
	Averages in cubic & linear Inches English.			98	21·3	7·3	5·9	5·6	4·8	5·3	·81	·76
	Av. in cubic Centim. & linear Millimeters.			1605	541	185	149	142	122	134		

TABLE II.—MEASUREMENTS OF [illegible] TO BE OF MEN, AND 21 OF WOMEN.

No.	DERIVATION OF SKULLS.		Probable Age.	I. Cubic capacity.	II. Circumference.	III. Length.	IV. Breadth.	V. Height.	VI. Face. Length.	VII. Face. Breadth.	A. Breadth : Length = 1·00.	B. Height : Length = 1·00.
	a. *Skulls supposed to be of Men.*											
A.	BELGÆ.	Winterbourn Stoke, S. Wilts. A 159	25	93	20·6	7·3	5·5p	5·7	4·5	5·1	·75	·78
		B 160	60	99	22·	7	6·1t	5·4	5·2	5·5	·87	·77
B.		,, ,, 161	7	. .	18·	6·4	5·2p	5·4	3·5	. .	·81	·84
C.		,, ,, 162	1	. .	17·	5·7	4·6p	4·8	2·3	. .	·81	·84
1.		,, ,, 179	45	95	21·7	8·0	5·5t	5·6	. .	. .	·68	·70
2.		Tilshead, South Wiltshire. 180	55	. .	. .	7·5	5·4p	5·7	. .	. .	·72	·76
3.		,, ,, 181	30	. .	. .	7·8	5·5p	5·7	. .	. .	·70	·73
4.		,, ,, 210	25	99	21·3	7·9	5·3p	5·5	4·4	4·9	·67	·69
5.		Bowl's Barrow, South Wiltshire. 211	35	105	21·2	7·7	5·4p	5·6	4·5	5·1	·70	·72
6.		,, ,, 212	60	96	20·5	7·5	5·1p	5·8	. .	. .	·67	·75
7.		,, ,, 213	50	. .	. .	8·1	5·2	6·1	. .	. .	·64	·75
8.		,, ,, 198	50	94	20·6	7·6	5·2p	5·4	4·7	. .	·68	·71
9.	DOBUNI.	Oldbury, North Wiltshire. A	18	106	20·6	7·2	5·7p	5·5	. .	. .	·79	·76
D.		Charlton Abbots, Gloucestersh. B 1	55	108	21 ·	7·8	5·5	5·5	. .	. .	·70	·70
10.		,, ,, C 1	55	96	21·5	7·7	5.3p	5·7	4·3	5	·68	·74
11.		,, ,, C 3	60	114	21·6	7·8	5·6p	5·6	. .	. .	·71	·71
12.		,, ,, C 4	60	100	21·2	7·4	5·6p	5·5	. .	. .	·75	·74
13.		,, ,, C 5	65	. .	21·8	8	5·8t	5·7	. .	. .	·72	·71
14.		,, ,, C 11	60	. .	. .	7·6	5·5p	. .	. .	. .	·72	. .
15.		,, ,, D 1	20	. .	20·4	7·4	5·4 ?	5·6	4·1	. .	·72	·75
16.		,, ,, D 2	30	86	20·3	7·4	5·3p	5·4	. .	. .	·71	·72
17.		,, ,, D 3	25	. .	20·2	7·3	5·p	5.7	. .	. .	·68	·78
18.		,, ,, 188. 1	30	110	21·8	8·0	5·6p	5·9	. .	5·2	·70	·73
19.	BRIGANTES.	Dinnington, W. R. Yorkshire. 2	60	95	21	7·5	5·4p	5·8	. .	5·4	·72	·77
20.		,, ,, 3	50	100	21·2	7·6	5·6p	6·0	. .	5·3	·73	·78
21.		,, ,, 4	70	108	21·7	7·8	5·6p	5·7	. .	5·3	·71	·73
22.		,, ,, 5	75	101	20·9	7·4	5·5p	5·6	. .	5·2	·74	·75
23.		,, ,, 6	21	96	21	7·5	5·6p	5·5	. .	5·1	·74	·73
24.		,, ,, 7	40	83	20·5	7·5	5·2p	5·4	. .	. .	·69	·72
25.		,, ,, 8	25	. .	20·6	7·6	5·2p	. .	. .	. .	·68	. .
26.		,, ,, 9	20	. .	21·2	7·8	5·4p	6·0	. .	. .	·69	·76
27.		,, ,, 10	18	. .	. .	7·1	5·2p	5·9	. .	4·9	·73	·83
28.		,, ,, 1	65	88	20·6	7·1	5·75p	5·5	. .	. .	·80	·77
E.		Ebberston, N. R. Yorkshire. 2	60	83	20·3	7·3	5·2p	5·1	. .	. .	·71	·69
29.		,, ,, 5	20	. .	20·7	7·7	5·2p	5·5	. .	. .	·67	·71
30.												
	Averages in cubic & linear Inches English.			98	21	7·6	5·3	5·6	4·4	5·1	·70	·73
	Aver. in cub. Centim. & linear Millimeters.			1605	533	193	134	142	111	129		
	b. *Skulls supposed to be of Women.*											
1.	DOBUNI.	Littleton Drew, North Wiltshire 64	17	88	21	7·7	5·4p	5·5	. .	. .	·70	·71
2.		Rodmarton, Gloucestershire 165	40	89	20·6	7·4	5·5p	5·5	4·1	4·9	·74	·74
3.	BELGÆ.	Tilshead, South Wiltshire 182	30	. .	21·8	7·7	5·7p	5·0	4·5	. .	·74	·65
4.		,, ,, 183	20	. .	. .	7·1	5·3p	4·9	. .	. .	·74	·69
5.	DOBUNI.	Oldbury, North Wiltshire.	60	. .	20·8	7·5	5·6p	5 2	. .	. .	·74	·69
6.		,, ,,	50	. .	. .	7·4	5·3p	5	. .	. .	·71	·67
7.		Charlton Abbots, Gloucestersh. B 2	50	86	20·6	7·4	5·1	5·5	. .	. .	·68	·74
A.		,, ,, C 2	60	105	20·6	7·2	5·6p	5·6	4·3	5·2	·77	·77
8.		,, ,, C 6	30	86	20·1	7·2	5·1p	5·2	. .	. .	·70	·72
9.		,, ,, C 7	40	87	19·9	7·1	5·1p	5·4	. .	. .	·71	·76
10.		,, ,, C 8	60	. .	20	7·2	5·4p	5·6	. .	. .	·75	·77
11.		,, ,, C 9	20	. .	. .	7·5	5·3p	. .	. .	. .	·70	. .
12.		,, ,, C 10	60	. .	20·6	7·5	5·1p	. .	. .	. .	·68	. .
13.		,, ,, D 4	7	. .	19·5	7·1	5·2p	4·8	. .	. .	·73	·67
14.	BRIGANTES.	Dinnington, W. R. Yorkshire. 11	80	91	20·2	7·2	5·4p	5·7	. .	4·9	·75	·79
15.		,, ,, 12	40	. .	20	7·0	5·2p	5·8	. .	. .	·74	·82
16.		,, ,, 13	60	88	20·3	7·2	5·4p	5·3	. .	. .	·75	·73
17.		,, ,, 14	55	. .	20·1	7·4	5·3p	5·5	. .	. .	·71	·74
18.		,, ,, 15	15	. .	. .	7·4	5·4p	. .	. .	. .	·72	. .
19.		Ebberston, N. R. Yorkshire. 3	60	. .	21·4	8·3	4·7p	. .	. .	. .	·56	. .
20.		,, ,, 4	40	. .	. .	7·3	5·2p	. .	. .	. .	·71	. .
	Averages in cubic & linear Inches English.			90	20·4	7·3	5·2	5·3	4·3	4·9	·71	·72
	Aver. in cub. Centim. & linear Millimeters.			1474	518	185	132	134	109	124		

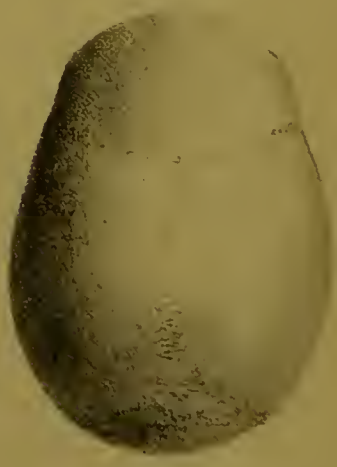
No.	DERIVATION OF SKULLS.		Probable Age.	I. Cubic Capacity.	II. Circumference.	III. Length.	IV. Breadth.	V. Height.	VI. VII. Face. Length.	Face. Breadth.	A. Breadth : Length =1·00.	B. Height : Length =1·00.
	a. *Skulls supposed to be of Men.*											
1.	Borreby, Falster, Denmark.	18519. I.	60	. .	20·4	7	5·5*t*	5·6	4·7	5·1	·78	·80
2.	,, ,,	,, II.	60	. .	21·3	7·3	5·8*p*	6	5·	5·3	·79	·82
3.	,, ,,	,, III.	70	. .	21·5	7·4	6·1*t*	5·5	4·8	. .	·82	·74
4.	,, ,,	,, IV.	65	. .	21·6	7·6	5·9*p*	5·8	4·4	5·5	·77	·76
5.	,, ,,	,, V.	45	. .	21	7·1	6·*p*	6	4·6	5·6	·84	·84
6.	,, ,,	,, VII.	55	. .	20·6	7·2	5·7*t*	5·9	4·7	5·2	·79	·81
7.	,, ,,	,, VIII.	45	. .	21	7·1	5·9*p*	6·1	4·7	5·8	·83	·85
8.	,, ,,	,, IX.	65	. .	20·5	7·1	5·7*t*	5·6	4·8	5·4	·80	·77
9.	,, ,,	,, X.	50	. .	21·7	7·5	6·2*t*	5·9	4·7	. .	·82	·78
10.	,, ,,	,, XII.	45	. .	20·7	7·1	5·5*p*	5·7	. .	. .	·77	·80
11.	,, ,,	,, XIV.	70	. .	20·8	7·1	5·2*p*	5·7	. .	. .	·73	·80
12.	,, ,,	,, XVII.	20	. .	20·	6·8	5·7*p*	5·2	4·3	. .	·83	·76
13.	,, ,,	,, XXII.	70	. .	21·5	7·7	5·6*t*	5·5	. .	. .	·72	·71
14.	Udby, Möen, Denmark.	1469.	50	. .	20·1	6·9	5·6*t*	5·5	. .	5·4	·81	·71
15.	,, ,,	1469.	60	. .	20·9	7·4	5·5*p*	5.7	4·7	5·3	·74	·77
16.	Byen, Möen, Denmark.	1.	30	. .	19·1	6·7	5·1*t*	5·5	. .	5	·76	·82
17.	,, ,,	2.	. .	. .	19·5	6·6	5·5*p*	. .	. .	. .	·83	. .
18.	,, ,,	3.	. .	. .	20·6	7·2	5·6*t*	. .	. .	. .	·77	. .
19.	,, ,,	4.	. .	. .	21·8	7·7	5·9*p*	. .	. .	. .	·76	. .
20.	Magleby, Möen, Denmark.		. .	. .	20·1	6·9	5·7	5·7	. .	. .	·82	·82
	Averages in Inches English.			. .	20·7	7·1	5·7	5·7	4·65	5·36		
	Averages in Millimeters.			. .	525	180	144	144	118	136	·79	·78
	b. *Skulls supposed to be of Women.*											
1.	Borreby, Falster, Denmark.	18519. XI.	20	. .	20·3	6·9	5·8*p*	5·5	4·3	5·0	·84	·79
2.	,, ,,	,, XIII.	18	. .	20·2	7·1	5·4*p*	5·5	. .	. .	·76	·77
3.	,, ,,	,, XV.	60	. .	20·5	7·2	5·6*p*	. .	. .	. .	·78	. .
4.	,, ,,	,, XVI.	60	. .	19·5	6·8	5·4*p*	5·2	4·4	4·9	·79	·76
5.	,, ,,	,, XVIII.	. .	. .	20·2	6·9	5·7*p*	5·4	. .	. .	.82	·78
6.	,, ,,	,, XXI.	70	. .	19·8	7·1	5·2*p*	5·5	. .	. .	·73	·80
7.	Udby, Möen, Denmark.	1469.	. .	. .	19·8	6·7	5·5	5·3	. .	. .	·82	·79
8.	Byen, Möen, Denmark.	5.	. .	. .	19·8	6·7	5·7*p*	. .	. .	. .	·85	. .
	Averages in Inches English.			. .	20·	6·9	5·5	5·4	4·35	4·95		
	Averages in Millimeters.			. .	508	175	139	137	110	125	·79	·78

TABLE IV.—MEASUREMENTS OF 28 SKULLS FROM CHAMBERED LONG BARROWS, IN THE ISLANDS OF



½ diam.

¼



¼

ANCIENT BRITISH — LONG BARROW W STOKE WILTS

½ diam.

¼

¼

From nat.ᵉ on Stone by J. Erxleben

M. & J. Barnhart

ANCIENT BRITISH — LONG BARROW, W. STOKE WILTS

$\frac{1}{2}$ diam

$\frac{1}{4}$

$\frac{1}{4}$

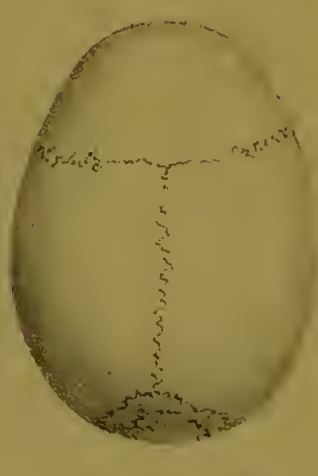
From nat & on Stone by J Erxleben. J & H Bernhart imp

ANCIENT BRITISH – LONG BARROW TILSHEAD WILTS

$\frac{1}{2}$ diam

$\frac{1}{4}$

$\frac{1}{4}$



ANCIENT GAULISH. "GROTTE", NOGENT LES VIERGES OISE

ON

THE TWO PRINCIPAL FORMS OF

ANCIENT BRITISH AND GAULISH

SKULLS.

In Two Parts,

WITH TABLES OF MEASUREMENTS.

BY

JOHN THURNAM, M.D., F.S.A.

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The skulls from the circular barrows of England of the pre-Roman period, are mostly of brachycephalic or sub-brachycephalic type; this short and broad, or round, cranial form being found in tumuli evidently of the same epoch, though some of them contain implements and weapons of both bronze and stone, others of stone only. It is inferred with great confidence, approaching to certainty, that the people of South Britain, who, Cæsar tells us, had migrated from Belgic Gaul, were a brachycephalic and also a tall race. If the conical and bell-shaped barrows of South Wilts and Dorset, and especially those of the great Stonehenge necropolis, in the centre of the region of the Belgæ of Ptolemy, be not those of the very people who fought against the legions under Plautius and Vespasian, then we must conclude that their tombs are yet to seek. Not only were the most civilised people of Britain, at the beginning of the historical period, brachycephalic; but also the people of Belgic Gaul, whence they came, and likewise those of Celtic Gaul (who there is no proof differed ethnically from their neighbours to the north-east of the Seine and Marne) must have been a short or round-headed race.

In addition to the brachycephalous skulls, of which so many examples are described in the *Crania Britannica*, a less number of decidedly dolichocephalic crania have also been depicted. These are principally derived from the chambered long-barrows of North Wilts and Gloucestershire, being the district of the British Dobuni, the same tribe which, at the time of the conquest under Claudius, was subject to the great neighbouring tribe of the Catuellani. There is no well-authenticated proof that metallic objects, whether of bronze or iron, have in any case been found in the undisturbed chambers of these tombs, which, however, yield well-chipped flakes and arrowheads, and also axes of flint. The skulls from these barrows, which are those of a people of middle or even short stature, seem certainly the remains of a more ancient people than those who

raised most of the circular tumuli of this part of the island; though it might at first sight appear more legitimate to refer them, not to any pre-Celtic race, but rather to the people of the interior, who, in Cæsar's time, claimed to be autochthonic, and at an earlier date had also occupied the coast-districts, from which they had been expelled by the immigrants from Belgic Gaul. The Dobuni were, at least, a tribe with no claim to a Belgic or Gaulish origin, in the way in which the Belgæ, the Atrebates, the Regni, the Cantii, and perhaps the Catuellani, were Belgic; but in the time of Julius must have belonged to the "Britanniæ pars interior"; though to them, as to the other tribes of the centre of the island, the name of Celtic must be conceded, at least in the sense of their being a Celtic-speaking people.

When, however, we conclude that the dolichocephalic skulls from our barrows are more ancient than the brachycephalic ones, we find ourselves at variance with the French school of anthropologists. William F. Edwards, the distinguished teacher of that school, following in the wake of the historian Thierry, maintained that the physical characteristics of both a Gaelic and a Cymric race are still distinguishable in France. Those of the Gaelic, or older Celtic race, constituting his *Type Gall*, are said to be "a head more round than oval, round features, and a middle stature"; whilst those of the Cymric, or supposed secondary race, forming his *Type Kimri*, are "a long head, broad elevated forehead, and a high stature."* A careful perusal of this famous letter by M. Edwards will, I

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* *Des Caract. Physiol. des Races Hum.*, 1829: reprinted, *Mém. de la Soc. Ethnol. de Paris*, 1841, tome i. M. Edwards adds some other characteristics of his two races. His words (pp. 54, 55) are:—"*Type Gall*: "Tête arrondie de manière à se rapprocher de la forme sphérique; le front est moyen, un peu bombé et fuyant vers les tempes; les yeux sont grands et ouverts; le nez, à partir de la dépression à sa naissance, est à peu près droit, c'est-à-dire qu'il n'a aucune courbure prononcée; l'extrémité en est arrondie, ainsi que le menton; la taille est moyenne" ("petite, mais assez robuste," 1842). *Type Kimri*: "Tête longue, le front large et élevé, le nez recourbé, la pointe en bas, et les ailes du nez relevées, le menton fortement prononcée et saillant, la stature haute" ("très-élevée et très-grêle," 1842). In his letter of 1829, M. Edwards said nothing as to the colour of the eyes or hair; but in his *Fragments d'un Mémoire sur les Gaëls*, written just before his death, in 1842. (*Mém. de la Soc. Ethnol.*, tome ii. p. 13, comp. p. 1), he makes some modification in his description of the two types; and adds to that of the *Type Gall*: "Les cheveux sont de couleur obscure, bruns ou noirs." *Type Kimri*: "Les cheveux sont en général légers."

think, show the limited extent of his observations, and their insufficiency for the confident theory which he based on them. For the most part, however, his views are still received in France. In the Museum of Natural History at Paris, the skulls from ancient Gaulish tombs are marked as belonging to the one or other of these two races, *Type Gall* or *Type Kimry*, as they conform to a brachycephalic or a dolichocephalic form, with but little if any warrant from archæological evidence.*

In his work, entitled *Ethnogénie Gauloise*, M. Belloguet laboriously controverts the system of Gaulish duality of MM. Thierry and Edwards; the defects of which he sums up as, "first, the Cisalpine *Kimris* of these writers were really *Galls;* second, the two types could not have had the common (Indo-European) origin which is attributed to them; and, third, Edwards has forgotten the presence of the Germanic element in the north-east of France and in the Burgundian provinces." His own conclusions are, that the Celts of Gaul, including the Belgæ, were blonde, of high stature, and long-headed; and that mixed with them was another more numerous people with brown or black hair and eyes, of less stature, and round or short-headed. These he concludes formed a pre-Celtic race, often regarded as Iberian, but which he rather identifies with the Ligures, to whom he assigns a North-African or Berber origin. These pre-Celtic *brachycephali* he believes were sufficiently numerous to absorb the Celts themselves, "whose type," he says, "is no longer found in France. On the other hand, the Celts, as the more civilised race, communicated their language to those whom they conquered, but by whom they were themselves absorbed."† Such are the views of M. Belloguet; they are ingenious; but it cannot be admitted that they are

* See the remarks on this subject by M. Belloguet, who was informed by M. Serres himself "that he had no other theory on this subject than that of M. W. Edwards, and that he had named *Kimry*, the skulls of a long, and *Gall*, those of a round form." M. Belloguet continues: "Ainsi cette classification du Musée d'Anatomie, qui m'avait tant préoccupé comme pouvant faire loi dans la science, n'était qu'une application faite au hasard du système de la dualité Gauloise" (*Ethnogénie: Types Gaulois*, 1861, p. 160). The fullest description I have seen of the ancient Gaulish skulls in the Paris collection is in the work here quoted (pp. 171-177). We must regret the error into which the author falls (p. 172), in confusing and reversing the characters of the so-called *type Gall* and *Type Kimry*, in his description of the skulls from the "sepulchral gallery" or dolmen, at Meudon, near Paris.

† Belloguet, p. viii, 183.

the true explanation of the facts he has so diligently examined.

Certain parts of M. Belloguet's criticism rest, probably, on a solid foundation. This is especially the case with his objections* to the diverse physical characteristics of the Celts and Belgæ (*type Gall* and *type Kimri*), as taught by M. W. Edwards. I must, however, remark, that the strongest argument against such diversity is the express testimony of Strabo; who, after telling us that the Aquitani differed from the other people of Gaul in their bodily conformation, which resembled that of the Iberians; proceeds to say that the Belgæ and Celtæ participated in the same Gaulish exterior, or bodily form.† It is remarkable that in the introduction to the same edition of his work, in which the learned historian, M. Amédée Thierry, gives its due weight to this very passage, he should not perceive the inconsistency therewith of the views of M. Edwards, but should have welcomed them as confirmatory of his own doctrine of Gaulish duality,—a doctrine which he had based on historical and philological evidence, though to what extent it is well founded is still much controverted.‡ It is evidently most important to give their full force to the two passages of Strabo, in which he asserts the *common Gaulish exterior of the Celts and Belgæ;* for, taken with that of Tacitus as to the resemblance of the Southern Britons and the Gauls, they afford a trustworthy basis to the anthropologist who is engaged in the identification of the osseous remains of these peoples.

The learned anatomist of Stockholm, Retzius, also believed the Celtic type to be dolichocephalic; and he referred the brachycephalic skulls from ancient Gaulish tombs to a pre-Celtic, Turanian race, of whom he believed the Basques to be

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* Ibid., p. 90-91.

† Strabo, lib. iv, c. i, § 1. Τοὺς δὲ λοιπους, Γαλατικὴν μὲν τὴν ὄψιν. (Comp. lib. iv, c. 2, § 1.) It is remarkable that although in his *Fragments d'un Mémoire sur les Gäels*, M. Edwards refers to this important passage, he takes no notice of that part of it here quoted, which is so opposed to his chief conclusion.

‡ See the writer's sketch of the philological part of this question in his *Historical Ethnology of Britain* (*Cran. Brit.*, chap. v, pp. 135-139). The celebrated passage with which Cæsar commences his *Commentaries*, "De Bello Gallico," should always be read in connexion with the more discriminating one with which Strabo opens his description of Gaul; and in which he says he describes, as is the duty of the geographer, the physical divisions of countries and diversities of nations, rather than their political limits.

the living representatives. This view of Retzius appears to be that, until very recently, generally held by the modern school of French anthropologists, as represented by such able inquirers as MM. Broca and Pruner-Bey. It is confidently maintained by M. Broca that both the Celts and Kimris of Gaul were dolichocephalic, and that Gaul had a pre-Celtic population, which was brachycephalous. M. Broca refers the brachycephalic type, which, as he observes, is still so prevalent in France, to a pre-Celtic race of the stone period; and with many other anthropologists believes that Denmark, Britain, and Switzerland were, in the stone age, likewise inhabited by *brachycephali*, who, long before the historical period were, like those of France, overrun and subjugated by successive waves of dolichocephalic races, the ancestors of the various Indo-European peoples.*

The learned anthropologist, Von Baer, holds similar views; and derives the brachycephalism of modern Europe, wherever he finds it, from a primitive brachycephalic population, anterior in time to the immigration of the Indo-Europeans, and consequently, both in France and Britain, from a pre-Celtic people.†

It will be seen that whatever discrepancies there are in these different systems, whether those of Edwards, Belloguet or Retzius, they still agree in making the ancient brachycephalic skulls the older, and the dolichocephalic ones the more recent of the two. It may appear rash to controvert an opinion so

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* *Anthropological Review of London*, vol. i, 1863, pp. 292-294. M. Broca admits, however, the pre-historic existence, "perhaps the anteriority," in the west of Europe, of the dolichocephalic type. Notwithstanding this admission seems principally to refer to skulls from caverns, the writer ventures to think that (combined with M. Broca's own remarkable demonstration of the dolichocephalic character of a large series of Basque skulls) it is with difficulty reconciled with the decided opinion of the same distinguished inquirer as to the brachycephalic character of the pre-Celtic stone-using people, and the dolichocephalic character of the bronze-using Celts. I find, by a letter from M. Broca, that his opinions on this subject have gradually undergone considerable modification, and that they have ceased to be identical with those quoted from him in the text above. The views of Retzius are still energetically defended by M. Pruner-Bey.

† See the memoir by Professor v. Baer, *Ueber einen Schädel aus Mecklenburg*, "Bull. de l'Acad. Imp. de St. Petersbourg," 1863, tome iv, p. 335. In this memoir, the author says that whilst there is ample proof of a very ancient brachycephalic race in Europe, there is as yet no sufficient evidence of a dolichocephalic people anterior to the advent of the Indo-Europeans. He admits, however, that such proof may yet be forthcoming:—"Mehr nachweise von einem Europäischen urvolke mit langgezogenen und zugleich grossen schädeln" (p. 343). I venture to think that strong evidence in this direction is afforded in the present memoir.

ably supported by the leading anthropologists of the day; but the views I have been led to adopt have been forced upon me after long inquiry, and after many years of original investigation of the cranial forms from the most ancient tumuli of this country.* These opinions, moreover, are not altogether peculiar to myself. The priority of the dolichoeephalie skulls from the ehambered and other long-barrows of Britain, was maintained by the late Mr. Bateman; who made so large a colleetion of the most aneient erania, assoeiated implements and other remains, from the barrows exeavated by himself and friends, in Derbyshire, Staffordshire and Yorkshire. Mr. Bateman assigned the chambered barrows to "the most remote antiquity, when the sole material for the spear and arrow was flint." After exploring several sueh mounds (much less remarkable, however, in the size of their chambers than those of the Dobunian distriet), he says, "the interments within the chambers have been many, and apparently eontinued over some length of time. They are marked by a strongly-defined type of skull, the more obvious feature being exeessive elongation and a laterally compressed appearance, enhaneed sometimes by the sagittal suture being elevated into a ridge." To a later period, he assigned the smaller barrows eovering one or two skeletons, aeeompanied sometimes by objeets of bronze in addition to those of flint, the crania from whieh, he says, are of a short, round form.† In these conelusions Mr. Bateman to a great extent adopted those of Professor Dr. D. Wilson, whose opinions, as matured by further inquiry, have very lately been published. Dr. Wilson holds that the earliest population of Britain was an allophyllian and pre-Celtic one, with a peculiarly doliehoeephalie eranial conformation, tapering equally towards the forehead and oeciput, to whieh he gives the name of *kumbecephalic*, or boat-shaped. Ignorant of metals, these people,

* It is right to mention that Dr. J. Barnard Davis, joint author with myself of the *Crania Britannica*, does not admit the priority in date of the dolichocephalic skulls from the long barrows, or the pre-Celtic doctrine in any of its forms. He maintains "the protogenic character of the Celts," and regards the long and short skulls from the tumuli as equally Celtic. His views on this subject differ alike from those here maintained, and from those generally held by continental anthropologists (*Cran. Brit.*, pl. 33, chap. II, p. 20, and *passim*).

† *Ten Years Diggings*, 1861, p. 146; *Journal Brit. Arch. Assoc.*, 1852, vol. vii, p. 210.

rude workers in stone, raised those remarkable megalithic tombs, in the crypts and galleries of which the bony remains of their noble or royal dead are found. Upon these, he maintains, a race intruded, having skulls of marked brachycephalic proportions, with prominent parietal tubers, and truncated and often flattened occiput; in whose smaller earthen tumuli and cists, the first traces of bronze implements and weapons are met with. This, he believes, was also an allophyllian, perhaps, a Turanian people, to whom a third race, the true Celts, who, as he holds, were dolichocephalous, succeeded.* To this last proposition I am unable to give my assent, finding, as we do, that the brachycephalous form of skull, described by Dr. Wilson as that of his second race, is the form usual in the least ancient of the pre-Roman tumuli of the south of the island, as well as in the rest of Britain, and is therefore, doubtless, that of the Celtic (Cymric-speaking) inhabitants; in fact, that of the Britons of the times of both Julius and Claudius Cæsar.

Whether sanctioned by authority or not, the views maintained in this paper appear to rest on facts not easily otherwise explained. It is my object (whatever may become of the explanations by which they are accompanied) to submit these facts to the consideration of the anthropologists of the two countries; which—though separated by the sea and by a difference of language—were once the seat of a common Celtic nationality,† and are now happily allied in the joint pursuit of this and other scientific questions.

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* *Prehistoric Annals of Scotland*, 1851; 2nd edit., 1863, vol. i, chap. ix. Sir W. R. Wilde, who, in his *Lecture on the Ethnology of the Ancient Irish*, 1844 (comp. Wilde, *Boyne and Blackwater*, 2nd edit., 1850, pp. 40, 229), called attention to the distinction between long and short skulls, likewise maintained that the long skulls were those of the aboriginal and probably dark-haired Irish; and that the round skulls from the smaller cists were those of a second and fair-complexioned race, who became the dominant people of the country. These early views of Sir W. Wilde, having inadvertently been otherwise represented (*Cran. Brit.*, p. 16), it is important to state this, as is here done with his sanction. He informs me, that his opinions remain unchanged. Among the modern Irish, Sir W. Wilde finds the descendants of the two ancient races,—the "long-headed aborigines," dark-haired and of swarthy complexion, particularly beyond the Shannon, towards the west; and the oval or globular-headed, light-eyed and fair-haired Celtic people, to the north-west of that river.

† Under the sovereignty of the Belgic Divitiacus, about 100 B.C., *Bell. Gall.*, lib. 2, c. iii, iv.

If we compare the existing populations of England and France, and omit any reference to the combinations resulting from the mixture of types, it will, perhaps, be allowed that there are in each country two principal cranial forms, which are mostly associated with other physical characteristics. In England, the prevailing form of skull is ovoid or moderately dolichocephalic, combined with a more than medium stature, and generally with a fair skin, and light eyes and hair. A much less common form of head is the brachycephalic, usually found in connexion with a less stature, and with a dark skin, hair, and eyes. The first of these two types is Teutonic, and to be traced to an Anglo-Saxon and Scandinavian source; whilst it is almost equally certain that the second is derived from our British or Celtic ancestors. In France, two types are found, corresponding with those in England, though with their respective modifications. The dolichocephalic fair people, not so tall for the most part as those of England, and the darker people, of shorter stature and decidedly more brachycephalic than in this country, form the two prevailing types. In France, however, the brachycephalous dark people constitute the majority. England, as its language and history both show, was much more extensively Germanised than France; but, after the downfall of the Roman empire, Gaul likewise admitted a large Teutonic element; and it is reasonable to allow that the dolichocephalic type of France, as of England, is in general Teutonic, and to be attributed to a Gothic, Burgundian, Frankish, or Scandinavian origin; and not, as by Edwards and others, to a Cymric, as distinguished from a Gaelic one; or, as by Retzius and his followers, to a Celtic source (without distinction of Cymri and Gael), as distinguished from a pre-Celtic, aboriginal people, of altogether different lineage. It is not, however, denied that the descendants of a pre-Celtic race may still exist in both countries; though hitherto we have had but little to guide us in the search for them.

But though the primary distinctions of type in the existing populations of the two countries may be sufficiently explained by a predominant Celtic or Teutonic derivation, the case may be different as to distinctions revealed to us by the human remains

derived from different classes of pre-Roman tombs; and which must be assigned to a period when the Celtic race in both countries was in the main free from Teutonic admixture. In these tombs we find the remains of two distinct human types; the one brachycephalic and of taller, the other, dolichocephalic and of lower, stature. The archæological evidence is clearly in favour of the brachycephalic type being the more modern. Exact researches in the more ancient tumuli of France have not, as it appears, yet been made on a large scale; but in England, in the conoid and bell-shaped barrows, in which implements and weapons of both stone and bronze* are found, (the one or the other predominating, or even excluding the other, according to the wealth or rank of the person interred, rather than to the relative antiquity of the tomb), the skulls are usually brachycephalic, or inclined to that type, and the stature is often above the average. In the much less numerous class of long barrows, often provided with sepulchral chambers at one end (and which have only recently attracted much attention, either from archæologists or anthropologists), there are no bronze or other metallic objects, but only those of flint or some kind of stone; the skulls are dolichocephalic, and the stature below the average. There are rare exceptions to this rule, but these are clearly to be referred to some casual admixture, or to the earlier tombs having been used by the later race; whilst, as regards the later barrows, it is evident that, unless the earlier race had been suddenly exterminated by the succeeding one, a mixture of interments and a mixture of the two types were to have been expected.

There are, then, two distinct cranial types from the barrows; one at least of which must be Celtic. To assume that both are Celtic, can scarcely be reconciled with the idea of

* It is a curious fact, that though the Britons certainly used iron for some purposes before the time of Julius, very few traces of this metal have been found in the tumuli of a pre-Roman date. The exceptions are so rare that the general argument is scarcely affected by them. The iron tire of chariot-wheels has been met with in barrows; but it is believed no sword, and hardly a single knife or other implement or weapon of this metal. Any exceptions in this respect seem to apply to the north of the island, where, during the imperial sway, the Roman influence, as to funeral customs, did not extend.

permanence of type (if such be admitted), or with that of ethnic unity. The Cymric and Gaelic forms of the Celtic language are equally believed to be Indo-European; and, according to the opinion generally received by such distinguished anthopologists as Retzius and Von Baer, the Indo-European cranial type is dolichocephalic, and the pre-Celtic, allophyllian type, brachycephalic. The evidence from the barrows, however, is at variance with this view. The brachycephalic and subbrachycephalic skulls from the round barrows must be regarded as those of the bronze-using Celts; and the dolichocephalic skulls from the chambered long-barrows, as those of a pre-Celtic stone-using people. Such seems to have been the order of succession of these two races in Britain; and such, it is believed, was also the order of their succession in Gaul. As I write, I have been informed by M. Broca, that at Chamant, near Senlis (Oise), a long barrow has lately been examined, in which were a very large number of skeletons. Three skulls have been preserved, which are "very dolichocephalic." There were no objects of metal, but axes, arrow heads and knives of flint, and a bodkin of bone. Nor is this the only example. About the year 1835, at Noyelle-sur-Mer, in Picardy, in a tumulus, the form of which unfortunately is not stated, there were found a great number of human skulls, separated from the trunk, and arranged in a sort of pile. All the skulls exhumed had, we are told, a singular conformation, being very long in the antero-posterior diameter, and very narrow in the transverse; so that the general form was much more elongated than in any French people at the present day.*

In Denmark, are certain megalithic barrows, in many respects like those of England, which are called Giants' Chambers; some of which have been opened, and found to contain skeletons and implements of stone. The skulls are generally of a

* *Mém. de la Soc. d'Emulation d'Abbeville*, 1838-40, p. 275. Of the skulls, four are preserved in the museum at the Jardin des Plantes (Nos. 209, 314, 315, 317; comp. Bellogucl, p. 173). The reporter on this tumulus observes:— "L'étude de ces monumens, dans notre pays, est fort peu avancée: . . . il paraît d'une haute importance d'ouvrir d'autres tombelles, et de noter soigneusement toutes les circonstances de ces ouvertures."

short, round form; and the most ancient people of this part of Europe, to whom these tombs are ascribed, are probably correctly regarded as of brachycephalous type. There is, however, no reason why the order of succession of dolichocephalic and brachycephalic races should have been the same in two parts of Europe so far apart as Scandinavia and Britain; and the type of the primeval brachycephalous race of the north is possibly to be connected with that of the existing brachycephalic Lapps. By a favourite hypothesis of various German and northern philologists and antiquaries, a so-called Turanian race is supposed to have constituted the earliest population of Europe, prior to the extension of Indo-European peoples in the west; and the Basques, whose language still defies classification, and is certainly not Indo-European, have been conjectured to form, with the Lapps, a second remnant of such aborigiual people.* The Basques have long been regarded as brachycephalous; but this was on the authority of Retzius, who had no other grounds for the opinion, than those afforded by two skulls, reputed to be Basque, presented to the Museum at Stockholm, which are of this type.† So long as the modern Basques were supposed to be brachycephalous, the hypothesis of a pre-Celtic race of that type, spread over the west and north, or even the whole of Europe, was consistent in

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* Dr. J. Barnard Davis has measured a considerable series of these skulls in the museums at Copenhagen, which were obtained from the Giant's Chamber at Borreby, and from other Scandinavian megalithic tombs (*Cran. Brit.*, chap. viii). They have also been described and figured by Mr. Busk (Lyell, *Antiquity of Man*, 1st edit., p. 86, and elsewhere). It must be admitted that these skulls have a great resemblance to those of the ancient Gauls and Britons of the brachycephalic series; and it deserves inquiry whether they do not really belong to a northern branch of the same people. Measurements of them are given in one of the Tables appended to this Memoir.

† Dr. Barnard Davis, who has examined these two skulls, informs me that they are marked—the one (A.), "J. D. Tellander, 1858"; and the other (B.), "E. Museo Anatom. Clamart, Parisiis, 1859," (an apocryphal specimen;—they never had a Basque skull at Clamart). The authenticity of both these skulls appears to be doubtful, notwithstanding what is said in *Bulletins de la Société d'Anthropologie*, t. iii, p. 483; and Müller, *Archiv.*, 1858, p. 3. Both, especially the former, present an extensive parieto-occipital flatness. The measurements are as follows:—

	LENGTH. Inches.	BREADTH. Inches.	B. : L.
A.	... 6·8	6.2 t.	·91
B.	... 6·9	6·1 p.	·88

itself; though not easily reconciled with the fact of the skulls from the earliest tombs of England, and perhaps of France, being of dolichocephalous form. The Basques, however, so far as a large series of skulls from a village cemetery in Guipuscoa shows, are now found to be a long-headed people. As M. Broca informs us: "Only two or three of these sixty skulls are brachycephalous, and most of them are altogether dolichocephalous." This has a most important bearing on the question, whether one of the oldest, perhaps the oldest, population of the British islands and Gaul, may not have had a southern, and perhaps Iberian origin. For a probable solution of this problem, a comparison of the skulls from the long barrows with those of the Basques is essential, and to this I propose to return.

It is unnecessary here to describe the chambered barrows of the south-west of England; this being amply done in the *Crania Britannica*, in which the curious megalithic architecture of crypts and cists, in the tumuli of Uley, Littleton-Drew, West-Kennet, and Rodmarton is fully illustrated. These are all situated in North Wiltshire and Gloucestershire; in which last county this form of tumulus is of very frequent occurrence, and perhaps more common than in all the rest of England.* This may arise from two causes: first, the Cotteswold Hills abound in stone suitable for the construction of such chambers; and, secondly, it is not impossible that this bleak district may have been longer occupied by a pre-Celtic people than other parts of the island. Examples, however, exist in the adjoining counties of Berkshire (the celebrated "Weland's Smithy") and Somerset, where, at Stoney-Littleton, is the most remarkable of the whole, with its entrance, central avenue, and six side chambers, arranged in the form of

* A megalithic tumulus at Nympsfield, near Uley, was opened in 1862, and I have described the crania, which have been kindly contributed to my collection, and are of the usual dolichocephalic type (*Cotteswold Club Papers*, 1863). Two other chambered long-barrows, also in Gloucestershire, were opened in 1863; the one near Woodchester, the other near Charlton Abbots. The former had been previously rifled. The skulls from the cist in the Charlton Abbots tumulus were dolichocephalic; others, from a different part of the mound, brachycephalic. As the exploration has not been completed, any explanation of this apparent discrepancy would be premature. The last-named interments, however, were probably secondary.

a triple cross. Examples are found in both North and South Wales, but (like the circular chambered barrows of Ireland —New Grange and Dowth,—and of the north of Scotland), they have characters peculiar to themselves. Further north, in Staffordshire and Derbyshire, chambered barrows of less elaborate structure are met with, as described by Mr. Bateman; whilst in Yorkshire, I have noticed several large long barrows; though whether any of them contain chambers, in the absence of more than two or three excavations, is not known. A long barrow at Heslerton on the Wolds, E. R. Yorkshire, excavated in 1851, disclosed a heap of fifteen skeletons, with a leaf-shaped arrow head of flint. The skulls are remarkable for their elongated narrow form.* In levelling another long barrow at Dinnington, near Rotherham, in the West Riding, in 1862, a large number of skeletons were uncovered of all ages and both sexes, but without any regular arrangement, and with no implements or other objects. The skulls have lately been added to the museum at Oxford. They are decidedly dolichocephalic, with the occiput full and prominent; in some of them, the form is quite narrow and elongate. They fully bear out and confirm the general rule: the three most perfect have the breadth of ·70, ·72 and ·73 to the length; the mean of fifteen skulls is ·72. At the moment of my writing, another long barrow in the North Riding of this county, called Scamridge-Howe (near Scarborough), has been opened by the Rev. W. Greenwell. The tumulus is 165 feet in length, 45 in breadth, and about eight feet high. At the east end, on the natural level, were the confused remains of about fifteen skeletons, very much decayed and broken, but with no flint or other implements or pottery. I am informed there is some little variety in the form of the skulls, but that the most perfect is of decidedly dolichocephalic type. Elongated and egg-shaped tumuli are met with in Scotland, and are probably to be found in all

* Bateman, *Ten Years Diggings*, pp. 230, 276. The same type of arrowhead has been found in other long barrows; by Mr. Bateman, in Ringham Lowe, and Long Lowe (*ib.*, pp. 95, 145, 146); by Mr. Lysons, at Rodmarton; and by myself, in the rifled long-barrow on Alton Down, Wilts; but no example of the more artificial barbed arrowhead of flint has yet been met with in these sepulchres.

parts of the Island. It is to be hoped that whenever they are explored, it will be by those who are interested in anthropologieal investigations.

In France, there are numerous chambered tumuli, especially in Brittany; though there are many in eentral Franee, and in the vieinity of Paris itself. As yet, there is less evidence of their being found in the south of that eountry. As, however, they are met with in Spain—witness the very large one at Antequera—there can be little doubt of their existenee in the southern provinees of Franee likewise. Though they have distinguishing features, these Gaulish sepulehral ehambers have much in eommon with those of Britain. Like them, the majority are direeted from east to west, with an entrance to the east.* They eonsist usually of a quadrangular ehamber, into which opens a narrow gallery, or "*allée couverte.*" In no instanee, so far as I know, are there sets of chambers opening on each side of a eentral gallery, as in several of the English tumuli. They are usually eovered by oval mounds of earth; but I am not aware whether, as in the south-west of England, the megalithic struetures are eonfined to one end of the tumulus, or are situated in the eentre. In these ehambers, in Franee as in England, entire human skeletons are found, often in great numbers; and with these are axes and other implements of stone, but none of bronze or other metal.† As already shown, the skulls from the long barrow at Chamant, near Senlis (Oise), are reported as "very doliehoeephalous;" and another instanee of the discovery of aneient Gaulish skulls of elongate type, is afforded by the tumulus of Noyelle-sur-Mer. There appears evidenee, therefore, of the existenee in Gaul of a dolichocephalic race during the stone age.‡

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* Carro, *Voyage chez les Celtes*, 1857, p. 184; "Plans des Dolmens."

† The sepulchral chambers of the Channel Islands, Guernsey and Jersey, have, as might have been expected, a greater resemblance to those of France than of England.

‡ Since the above pages were printed, M. Broca has informed me, that two of three skulls from Chamant have, on being restored, proved to be less dolichocephalic than he had expected. The breadth of the three, respectively, is as ·78, ·71, and ·78 to the length. Two are thus regarded by him as being mesaticephalic, and one only as very dolichocephalic. It is evident that a

At Fontenay, near Caen, a remarkable chambered tumulus was excavated in 1829,* which corresponds with one type of those in our south-western counties. It contained ten circular domical chambers, arranged in pairs opposite to each other, and formed of horizontal dry-walling. They had a diameter and height of from ten to fifteen feet. Opening into each was a low gallery three or four feet wide, and roofed with large blocks of stone; such as no doubt originally completed the roof of each chamber, as in the celebrated one of New Grange. The galleries of approach opened on the exterior of the tumulus by low doorways; the general arrangement being the same as in the chambered barrow at Rodmarton. In the chambers were human skeletons of short stature; and scattered among these many human bones very imperfectly burnt, some being reduced to charcoal, and others scarcely coloured by fire. Bones in a similar condition have been found in the Gloucestershire chambered barrows of Nympsfield and Rodmarton; and in all three suggest some barbarous funeral rite—probably human sacrifices by fire and anthropophagism—rather than burial by cremation. There was no trace of any metal; and the only associated relics were a small stone axe-head and two small vases of black pottery. One woman's skull was preserved, casts from which are in different collections. M. Deshayes observes particularly the prolongation of the occiput, giving an occipito-frontal diameter nearly an inch longer than usual in skulls of the same size. The vertical view of the skull has a very dolichocephalic aspect; but the measurements yielded by the cast give results, as the table will show, somewhat at variance with such a conclusion. This arises from the disproportionate development of the parietal eminences. When the measure is taken at the usual point of the greatest breadth, near the temporal borders of the parietals, the proportion of breadth to length is reduced from ·77 to ·74. Had more skulls been obtained,

greater number of carefully observed facts are required, before more than a tentative comparison can be properly made between the skulls from the dolmens and chambered barrows of France and those of England. For the description of the Chamant chambered tumulus and skulls, see *Bulletins de la Société d'Anthropologie*, t. iv, pp. 513, 652; t. v, p. 3.

* *Mém. de la Soc. des Antiq. de Normandie*, p. 275, 1831-33. The skull is now at the Museum at the Jardin des Plantes; No. 2998.

more decided proofs of dolichocephalism would probably not have been wanting.

But the chambered tumuli of France are not, as seems to be the case with those of England, exclusively, if even generally, the tombs of a dolichocephalic people. On the contrary, skulls extremely brachycephalous in form have been obtained from several of them. The most famous is the large one at Meudon, near Versailles, in which were as many as two hundred skeletons, which was excavated in 1845, and carefully described by M. Eugène Robert.* M. Robert observes, that of the large number of about twenty skulls, which seem to have been obtained from this chamber, some were of a "round" and others of an "oval" form; so that he conjectured they might be the remains of two distinct races. M. Serres, who reported more particularly on them, named the round skulls as of the *type Gall*, and the oval ones as of the *type Kimry*; designations which he adopted from M. W. F. Edwards. In support of this opinion, M. Serres informs us that these two forms of skull occupied two different levels in the chamber, those of the *type Gall* being generally the deepest. This statement, however, is accompanied by qualifications which deprive it of much value;† and even were this not so, the inference which is implied, that the skeletons with an oval form of skull had been interred at a later period than those in which the cranium is of a short round form, can scarcely be admitted. These large sepulchral chambers seem always to have been entered by the opening at one end, when interments were to be made in them; as the covering stones are too heavy to have been easily removed when once in place. It is even possible that the brachycephalic skulls, which were of great thick-

* *Comptes Rendus de l'Acad. des Sciences*, tome xxi, 1845: "Voyages en Scandinavie," etc., 1854, pp. 199-248. With the skeletons were several axe-, javelin-, and arrow-heads, knives and other implements, all of flint; various implements of bone and horn; part of a necklace formed of the canine teeth of a badger, and many fragments of coarse, black and reddish, hand-made pottery. It is clear that the dolmen belonged to the "stone-period"; and the little bit of broken bronze, the position of which is not noted, was probably of no more significance than the fragments of Roman tile and pottery, which had, no doubt, found their way into the chamber between the covering stones.

† "Cette remarque est générale, car on n'a apporté aucun ordre dans l'enlèvement des ossements." P. 223.

ness, and very different in this respect from the oval ones, would, from their greater weight, sooner drop from the bodies,

Fig. 1. *Male Skull from the Meudon dolmen.—Quarter diameter.*

which were deposited in a crouching posture face to face along the sides of the chamber. If this were the case, they would naturally occupy a lower level, and would also acquire that

Fig. 2. *Vertical view of the same skull.—Quarter diameter.*

slate-grey colour by which they were distinguished from the yellowish coloured oval skulls.

Altogether, the proof of a succession of races, distinguished by a difference in the cranial type, the oval being subsequent in time to the round, cannot be regarded as substantiated by

the researches in this tomb. The existence of considerable variety in the form of the Meudon skulls must be admitted;

Fig. 3. Female skull, from the Meudon dolmen.—Quarter diameter.

but whether they are those of two races is a question which would require for its decision a careful examination of the entire series, now, perhaps, scarcely accessible. It

Fig. 4. Vertical view of the same skull.—Quarter diameter.

is very possible that the difference of form is no greater than is frequently met with in the brachycephalic series; which, in various races, often deviates towards the oval form, without becoming inordinately dolichocephalic. This is to some

extent confirmed by an examination of M. Robert's casts of two of the skulls, regarded as typical; for the use of which I am indebted to Dr. J. Barnard Davis. That of the male skull, named *type Gall* (*Figs.* 1, 2), is of the same brachycephalic form as our British skulls from barrows of the bronze period; the breadth being as ·85 to the length. The superciliaries are prominent, and the alveolar portion of the upper jaw is strongly developed, tending towards prognathism. The forehead and vertex are high; the occiput and adjoining parts of the parietals, as hereafter referred to, flattened. The cast of the skull, named *type Kimry*, is that of a woman (*Figs.* 3, 4). The race-characters are rarely well marked in the female; and, as shown in Professor Wagner's plates of the brain, and equally to be inferred from Professor Welcker's comparative measurements of male and female German skulls, this organ has a longer and more tapering form in women, whose skulls, even in brachycephalic races, incline towards dolichocephalism. This skull, however, strictly speaking, is oval rather than dolichocephalic; the proportion of breadth to length being ·75; or exactly the mean of the oval or orthocephalic class, as distinguished from the dolichocephalic, in which the proportion may be said not much to exceed ·70, and from the brachycephalic, in which it is ·80 and upwards.* There is some post-coronal depression. The upper jaw projects somewhat more than that of the male, but has not the Negro-like prognathism, which M. Belloguet attributes to it. The occiput is full and prominent, and has no trace of the vertical flatness observed in the male. The two last features are both feminine characteristics.† Even if the Meudon skulls be those of two different races, as it may be admitted is possible, they must, at least, have been contemporary; though, in such case, it is possible that one of them may

* See the explanation of the Tables appended to this Memoir.

† The description by M. Broca (*Bull. de la Soc. d'Anthrop.*, t. iii, 1862, p. 320), is that of casts of the same skulls from Meudon; though his measurements of the breadth of the female skull falls short of my own (when allowance is made for the defective state of the right parietal) by seven *millimètres*, or about three-tenths of an English inch. M. Broca, at that time, regarded the dolichocephalic skull as Celtic, the brachycephalic one as pre-Celtic. He observes, particularly on the large size of the latter, with a capacity, as gauged by him, of 1540 cubic *centimètres*, or 94 cubic inches Engli-h.

have been dominant and the other servile. The latter, who in such case must have been pre-Celtic, may have supplied wives to the former.

The proof of the existence in ancient Gaul of a brachycephalic race, who interred their distinguished dead in chambered tumuli, does not rest on a single example. The skull from a chamber of this description at Marly-le-Roi, not far from Meudon, which was sent by M. Robert to Stockholm, is of round form;* and Professor Retzius describes it as remarkably similar to the brachycephalic skull from the chambered barrow at Stege, in the Danish isle of Moen; of which Professor Eschricht gives a good representation.† Another "sepulchral gallery" at Val (l'Isle-Adam, Oise), in the country of the Silvanectes, to the east of Paris, having an entrance to the south, has been particularly described by M. Serres.‡ With the skeletons, there was nothing found but two small stone axes, and two vases of sun-dried pottery. Whilst M. Serres alludes to a considerable variety of type in the crania from this chamber, he, at the same time, remarks on the great perfection of the "*type Gall*," or brachycephalism, of certain of them. The curious entire skeleton, with the label *Silvanecte* (No. 1634), which, with several of the skulls, is in the museum at the Jardin des Plantes, is from this tomb. It has an oval or orthocephalic cranium, and is that of a woman.

The evidence before us appears to favour the conclusion, that whilst in Britain the chambered long barrows were erected by a dolichocephalous race, in Gaul such tombs were raised by a brachycephalous as well as by a dolichocephalous one, though especially by the former. Hence the inference, that the two races came into contact in Gaul at an earlier period than in Britain. In this country, it has been shown that the evidence is in favour of the dolichocephalous race having preceded the brachycephalous; by whom it seems to have been

* Robert, *Op. cit.*, p. 227; Müller, *Archiv.*, 1847, p. 500.

† Dansk Folkeblad, 1837, No. 28, p. 109. The figures and measurements of the two skulls are very similar; but that from Moen is of a man, that from Marly, most probably, of a woman.

‡ *Comptes Rendus de l'Acad. des Sciences*, tome xxxix, 1854.

absorbed, or, as is less likely, extirpated. In Britain, the remains of the brachycephalous Celtic race do not distinctly appear except in the circular tumuli, which are generally to be referred to the age of bronze; whilst the chambered and other long barrows of the stone age, so far as yet examined, always contain skeletons with crania of a dolichocephalic type.—It seems desirable to adduce further evidence of this position.

In South Wiltshire, scattered among the much more numerous circular tumuli, are many gigantic long barrows without chambers; stones for the formation of which were not easily to be obtained. Many of these were examined by Sir Richard Hoare and Mr. Cunnington; and found to cover interments of entire skeletons, generally at the east end, and without ornaments, pottery or weapons of bronze or other metal.* Unfortunately, none of the skulls were preserved; and it was impossible to say what was their type, whether dolichocephalic, like those from the chambers of the Dobuni, or brachycephalic, like those from the surrounding conoid and bell-shaped barrows.

After many unsuccessful attempts to find a long barrow having the original interment intact, in the spring of 1863 I was rewarded with success. About a mile and a half to the west of Stonehenge, on the boundary of the parishes of Winterbourn-Stoke and Wilsford, is a cluster of circular barrows, which, as in many other instances, are grouped around an immensely long tumulus; just as the hypogea and rock-tombs of Egypt are around the great pyramids.† The tumulus is about

* Mr. Cunnington informs us, that "of eleven long barrows which he had opened, nine produced skeletons at the wide end, lying by a cist or cists; . . . but no urns, arms, or trinkets of any kind" (*Archæologia*, vol. xv, 1805, pp. 340, 345; comp. vol. xxxviii, 1860, p. 405). Sir Richard Hoare concludes the frequent notices of his "unsatisfactory researches in the long barrows of South Wilts" with the remark, that "their original purport is still involved in obscurity, and a further explanation of them would be a great desideratum."

† See Hoare, *Ancient Wilts*, 1812, vol. i, pp. 121-126, and plate of "Group of Barrows on Winterbourn Stoke Down." The twenty-six tumuli which, in addition to the long barrow, form this group, are mostly of the more elegant, and probably less ancient, forms. In five, the interment has not been found; two, however, are those absurdly called "pond barrows," and probably not sepulchral. Of the twenty-one, seven have been raised over the entire body, and fourteen over the burnt remains. All are probably of the "bronze period;" and in three, containing skeletons, and one, burnt bones, there were fine blades or pins of that metal, one of the last with an ivory

240 feet in length, and 9 in height at the north-east end, where it has a breadth of about 65 feet: at the other extremity it is not quite so high or broad. The summit is thrown up almost to an acute ridge, but at the two ends the surface is more rounded. On each side is a trench stretching the whole length of the barrow, but, as usual, not continued round either end.

A large excavation at the south-west extremity, disclosed no sepulchral traces; and this immense mound, with an interment only at one end, was no doubt intended quite as much for a monument as a tomb. At the north-eastern end, about two feet below the highest part of the tumulus were six skeletons, viz., one of a man of about sixty years, one of a young woman under twenty, one of a child about seven, and three of infants of less than two years, the youngest, perhaps, fœtal. The skull of the man lay to the north-east, that of the woman to the south-west. Secondary interments of the Anglo-Saxon period have been

Fig. 5. Earthen Vase, with secondary interment.—One-third diameter.

found near the summit of long barrows; but these were obviously British, as shown by the flexed position of the skeletons,

handle. Drinking cups, or other earthen vases, were obtained from four of the barrows; and there was a bone pin with another of the deposits after cremation.

by an empty vase of very coarse British pottery, and an oval flint knife. The male skull is well preserved, and of extremely brachycephalic type; the skulls of the women and children were obtained in a fragmentary condition, but the latter present

Fig. 6. Flint Knife, with secondary interment.—Two-thirds diameter.

the same well-marked type, with the occiput flattened. These interments can hardly have been other than secondary, and of a later date than that for which the tumulus was erected; and it became a question of no slight interest whether, on the primary interment being reached, the skull would prove of the same, or of dolichocephalic type. Continuing the excavation, the chalk rubble was dug through, to a depth of six feet, into a stratum of black unctuous earth, of which the lower third of the barrow through its entire length seems to have been formed. At a further depth of three feet, the chalk rock was reached, where were the remains of the original interment; viz., the skeleton of a man laid on the right side, with the knees drawn up in a closely-contracted posture, and the head to the south-west. Close to the right arm, lay a natural bludgeon-shaped flint, about

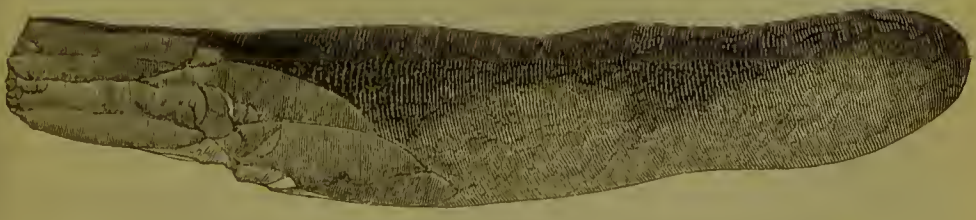

Fig. 7. Bludgeon-shaped Flint, with primary interment.—One-half diameter.

eight inches long, well adapted for being grasped in the hand; from one end of which numerous flakes had been knocked off. The skull was dolichocephalic; though less decidedly so than

many of the crania from the chambered barrows.* Near the back of the head was a round "cist" or hole, scooped out of the chalk rock, about eighteen inches wide and the same in depth. Two feet further to the north, were two similar cists of oval form, but somewhat larger, and scarcely so deep. These holes, like others beneath the long barrows of South Wilts, had perhaps been used for deposits of meat and drink, as a *viaticum* for the dead; or possibly for the blood of human victims, whose mangled remains appear often to have been buried with the body of their chief in this class of tumuli.† A few scattered bones of sheep and other animals were found near the summit; and, about a yard from the feet of the primary interment, was the symphysis of the ischium of an old horse. The skeleton was that of a man of less than middle stature; viz., about 5 feet 6 inches. The bones are small and slender, and, in this respect, are strongly contrasted with those of the brachycephalic skeleton from the upper level.‡ On the linea aspera of the right femur is a sharp jagged exostosis.

It remains to describe the two skulls, of which the measurements are given in the Tables appended to this paper. A, is the dolichocephalic skull, from the low level or base of the

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* The skull may be described as sub-dolichocephalic, or, more strictly, as orthoecephalic, or oval: its other relations are, on the whole, with the elongated rather than with the abbreviated class of British crania.

† In the human sacrifices of Dahomey, a large hole in the ground is prepared, with a block of wood, upon which the necks of the victims are laid and their heads chopped off, the blood being allowed to flow into the hole. (For the rest of these barbarous African ceremonies, see the "Despatches of Commodore Wilmot, presented to the House of Commons, 1863.") Very similar were the proceedings connected with the human sacrifices of the Khonds of India. Here, also, the blood of the victims was allowed to flow into a pit or hole prepared for the purpose. (Campbell, *Wild Tribes of Khondistan*, 1863.)

‡ The femur from the brachycephalic skeleton measures barely half an inch more than that from the dolichocephalic; and the stature of about 5 feet 8 inches, for a brachycephalic ancient Briton, is exceptionally low. The difference, however, as regards the strength and size of the bones, is very marked. The circumference of the neck of the brachycephalic femur exceeds the other by six-tenths of an inch. The following are the dimensions of the principal bones of the limbs in the dolichocephalic skeleton from the lower level (skull A.).

Upper Extremities.		Lower Extremities.	
Humerus - -	12½ inches.	Femur - - -	18 inches.
Radius - - -	9½ ,,	Tibia - - -	15¼ ,,
Ulna - - -	10¼ ,,	Fibula - - -	15 ,,

barrow ; B, the brachycephalic one, from the secondary interment near the summit. The skulls will be seen to differ in their dimensions in other respects, as well as in the relation of length and breadth. (*Plates* I *and* II.)

The dolichocephalic skull, A, is that of a man of about 25 years. There is premature synostosis of the frontal and parietals ; the coronal and sagittal sutures being almost entirely effaced. The greatest length is 7·3 inches (the glabello-inial diameter 7·1 inches) ; the greatest breadth is 5·5 inches, being in the proportion of 75 to the length taken as 100. The forehead is narrow and receding, and moderately high in the coronal region, behind which is a trace of transverse depression. The parietal tubers are somewhat full, and add materially to the breadth of this otherwise narrow skull. The posterior borders of the parietals are prolonged backwards, to join a complex chain of Wormian bones in the line of the lambdoid suture.* The superior scale of the occiput is full, rounded, and prominent ; the inion more pronounced than usual in this class of dolichocephalic skulls. The superciliaries are well marked, the orbits rather small and long ; the nasals prominent, the facial bones short and small ; the malars flat and almost vertical ; the alveolars short but rather projecting. The mandible is comparatively small, but angular ; the chin square, narrow, and prominent.† All the teeth are present ; they are beautifully white, with scarcely a trace of erosion on their crowns, indicating a very different diet from that which obtained in the case of the brachycephalic Briton, whose skull remains to be described, and whose food probably comprised a large proportion of ill-prepared grain. Our dolichocephalic skull is probably that of a young chief, whose diet principally consisted of milk and flesh, which Cæsar tells us in his time was still that of the Britons of the interior.‡ (*Plate* I.)

* The late Mr. Bateman often found Wormian bones in this situation, in narrow dolichocephalic skulls from the Derbyshire chambered barrows. (*Ten Years Diggings*, 1861, pp. 263, 269.)

† The great similarity of this lower jaw and that of the dolichocephalic and synostotic skull from the chambered long barrow of West-Kennet, deserves notice. (*Cran. Brit.*, plate 50.)

‡ "Interiores plerique frumenta non serunt ; sed lacte et carne vivunt."

The large brachycephalic skull, B, has all the sutures extensively obliterated, by the advance of age. The greatest length is 7 inches, which is very slightly in excess of the glabello-inial diameter; the greatest breadth is 6·15 inches, being in the proportion of 87 to the length taken as 100: the brachycephalism is greater than in any skull described and engraved in *Crania Britannica*. The forehead is high, broad, and expanded. The parietal region is short, but very broad; its posterior third slopes down abruptly, to meet the projecting rugose border of the overlapping flat occipital. The parieto-occipital flatness is much more marked on the left side than on the right, and may, perhaps, indicate the use of the cradle-board in infancy. The glabella and superciliaries are tolerably full, the nasals well pronounced, the orbits large and square, the facial bones large and deep, especially in the alveolar region; the malars prominent and elevated. The mandible is large and broad, the chin broad. The left temporo-maxillary joint has been the seat of considerable disease, causing much shortening and deformity of that side of the face. The maxillary condyle and glenoid cavity of the temporal present extensive atrophy and absorption; the right ascending ramus measures 2·8, the left only 2 inches, in length. The teeth are large and covered with tartar, the crowns very much eroded; the second lower bicuspid on each side seems never to have been developed. (*Plate* II.)

The discovery of skeletons so different in their cranial type, in different parts of this tumulus, goes far to establish the anteriority of that from the lower level, the type of which corresponds on the whole with that of skulls from the chambered barrows of the Dobunian district of North Wilts and Gloucester. Fresh proof is obtained as to the brachycephalic cranial type of the Belgic Britons; and strong testimony adduced as to the dolichocephalic type of the race which preceded them in this south-west part of Britain.

The later Belgic Britons seem to have been the first agriculturists—"agros colere coeperunt." (*B. G.*, lib. v, 12, 14; comp. iv, 31, 32; *Crania Britannica*, c. v. p. 66).

Later in the year 1863, I successfully explored another of the long earthen barrows of South Wilts. This was in the parish of Tilshead, about seven miles north of that last described, and not far from the eastern extremity of the ancient vallum called Old Ditch.* It is now covered with trees of about twenty years growth, and is of smaller size than that of Winterbourn-Stoke; being about 210 feet in length, 50 in breadth, and six or seven in height. There is the usual ditch on its north and south sides. Excavating near the east end, a stratum of black earth was found at the depth of about five feet; and in and below this, a pile of human bones, closely packed, within a space of less than four feet in diameter and about a foot and a half in depth. They proved to be the remains of eight skeletons, strangely cemented together; so closely as to show, that if not interred after the decay or removal of the flesh, the bodies must have been packed together as closely as possible in the sitting or crouching posture. The lowest skeleton, covered by the others, and most centrally placed, was that of a woman; whose skull, the best preserved of the whole, is described further on. There were no relics whatever with the skeletons; nor were any cavities scooped out in the chalk at the base of the barrow disclosed; though there can be little doubt such "cists" would have been found if the excavations had been sufficiently extended.

The skeletons were those of three men, three women, and two infants, from one to two years of age. The length of the bones of the limbs was not above the medium, and implies a stature of from 5 feet 5 inches to 5 feet 8 inches, for the men; and 4 feet 9 inches to 5 feet 3 inches, for the women.† The restoration of the skulls from the many fragments in which

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* It is laid down on the Ordnance Survey, and in Sir Richard Hoare's maps of Heytesbury and Amesbury stations. It is the "fine long barrow on a hill," referred to at p. 93 of *Ancient Wilts*, vol. i.

† In the following Table the bones are arranged in the order of their length, it being impossible to assign them certainly to the skulls to which they belong. The actual order, however, is not unlikely to have been that in which the skulls are numbered.

The computed stature in this table is obtained by taking the femur as 27·5 to the stature estimated as 100; this being the proportion obtained by Dr.

they were recovered, was a work of great labour. The first thing observed was that nearly all had been most extensively cleft, apparently during life; the gashes in two of the male skulls (Nos. 2, 3) being of remarkable length and width; in the one extending from the forehead to the vertex, and in the other traversing the skull in all directions. In a female calvarium (No. 6) the clefts are nearly as extensive. In the other male skull (No. 1) the largest of the series, the clefts are confined to the two temporal regions, and are somewhat more ambiguous in their character. A similar doubt may apply to a second female skull (No. 5); but, on the whole, I conclude that all five have been purposely cleft in the completion of the funeral rites. That human victims were sacrificed at the funerals of the Gaulish chiefs, somewhat before his time, we know from Cæsar himself, and from the geographer Mela. Among barbarous and partially-civilised peoples, such immolations have everywhere been common; and the mode by which they were carried out by those who raised the chambered and other long barrows of this country is evident, from the examples which, up to this time, have been adduced. The heads of the victims were no doubt cleft with an axe or sword. Out of six long barrows, four of them megalithic, which have been explored by myself or friends, and which I have particularly described,

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Humphry, from the measurement of twenty-five skeletons (*Human Skeleton*, 1858, pp. 106-108, Tables 1 and 4). This estimate gives a somewhat less stature than that obtained by the more artificial methods described in *Crania Britannica* (plates 42, 51, *notes*). More extended data for a table of measurements, like that by Dr. Humphry, but distinguishing the sexes, are still to be desired.

No. of the Skull.	LENGTH IN INCHES.				Computed Stature.
	Right Femur.	Left Femur.	Tibia.	Humerus	
					ft. in.
Male.					
1	18¾	18¾	15½	13½	5 8
2	18¾	—	15¼	13½	5 8
3	—	18	—	—	5 5
Female.					
4	17½	17½	14½	—	5 3
5	16¼	—	14½	—	5 0
6	—	15¾	—	—	4 9

all have presented such appearances,* with the exception of that of Winterbourn-Stoke, described in this memoir. In this instance the primary interment was represented by a single unmutilated skeleton; and it is probable that the usual funereal rites were never completed. It is clear that in the exploration of tombs of this description, whether in England or France, cleft skulls should always be searched for.

To return to our Tilshead barrow. The only skull without greater or less trace of violence (No. 4), is that referred to as the deepest and most centrally placed; and I am inclined to conjecture that this sepulchral mound was raised in honour of some woman of rank or female chief; the examples of Boadicea and Cartismandua showing that in Britain, supreme power was at times exercised by women. All the skulls are of the elongate form, with the occiput full and prominent; the mean breadth being about as 71 to the length taken as 100; the largest male skull has a breadth of ·68. There is post-coronal depression in most, and to a marked extent in one of the female skulls (No. 6). Very decided traces of it are observed in the centrally-situated female skull. This cranium, the only one with the facial bones and lower jaw, is a remarkable specimen, being not only very elongate, but having an extremely-depressed and flattened vertex; the greatest height being only as ·65 to the length.† (*Plate* III.) The only skulls to which I can compare it, are those of three Parisian women and especially that depicted by Dr. Foville, the height of which

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* The six tumuli are those of Uley, Littleton-Drew, West-Kennet, Rodmarton (all described in *Crania Britannica*), Winterbourn-Stoke, and Tilshead. The only example previously on record was in a long barrow near Heytesbury (a few miles from Tilshead), in which Mr. Cunnington, in the year 1801, found numerous skeletons crowded together at the east end, and observed that the skull of one "appeared to have been cut in two by a sword" (Hoare, *Ancient Wilts*, vol. i, p. 87. No inference was drawn from this). Cleft skulls, in one or two instances, have been found in other British graves; and this mode of immolation may have been practised down to a later age than that of the long barrows. The cleft skulls from the cists at Monkton, North Wilts, are of dolichocephalic type, and much resemble the skulls from the long barrows. The district is Dobunian (*Cran. Brit.* pl. 58). One of the cleft skulls from Rodmarton is figured in *Cran. Brit.* (pl. 59, p. 4).

† In the numerous cranial measurements given by Professor Welcker (*Wachsthum und Bau des Menschlichen Schädels*, 1862), I observe only three instances in which the relative height is so low as in this skull.

appears to be as ·63 to the length.* The skulls of the two "filles publiques," figured by Dr. Gosse,† are of a very similar form, which in all three cases is regarded as the result of an artificial, though undesigned, deformation.

Fragments only of the two children's skulls were recovered. The frontal suture of the eldest is quite open, and the two semi-frontals are very remarkable for their breadth, flatness, and slight elevation. This had produced that variety of *brachycephalism*, denominated *frontal* by Professor Weleker, from which even dolichocephalic Negroes are not, perhaps, entirely exempt.

The form of skull, from the bowl-shaped, bell-shaped, and other circular barrows of pre-Roman Britain, scarcely requires extensive illustration; being on all hands admitted to be brachycephalous. This was the decided opinion of the late Mr. Bateman; and it is even insisted on by Dr. D. Wilson, who observes: "To whatever causes the change may be traced, certain it is that in the centuries immediately preceding the Romano-British era, the occupants alike of the southern and the northern parts of the island were characterised by a head of brachycephalous proportions, and otherwise essentially different from that recovered from the megalithic tombs."‡ My friend and colleague, Dr. Barnard Davis, who dissents from the pre-Celtic doctrine, and regards the dolichocephalic skull merely as an "aberrant form," the connexion of which with "chambered barrows may be a contingency little more than accidental," still regards the brachycephalous as the "typical form of cranium of the Ancient Briton."§

Whilst the dolichocephalic skulls from the long barrows group themselves around the number 70, as regards the pro-

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* *Système Nerveux*, 1844, atlas, pl. 22. "Crâne déformé à la Française trouvé dans un cimetière de Paris."

† *Déform. du Crâne*, pl. ii, fig. 3; pl. iv, fig. 9. The deformity in these skulls, the *annular* and *bilobed*, is the same with that of which traces, represented by post-coronal depression, are seen in so many of the skulls from the long barrows of the south-west of England.

‡ *Prehistoric Annals of Scotland*, 2nd edit., vol. i. p. 268.

§ *Proceedings of Academy of Natural Sciences of Philadelphia*, 1857, p. 40, "*Crania Britannica*," *passim*.

portion of the breadth to the length taken as 100; the brachycephalic ones from the round barrows are mostly represented by the number 80 and upwards. The few exceptions to this rule to be observed in the extended Tables of Measurements in the *Crania Britannica*, are, I believe mostly to be explained by a mixture of races or of interments. It is not probable that the pre-Celtic people were everywhere and at once extirpated or absorbed by the Celtic; and hence the occasional (though still rare) presence of both cranial forms in the same tumulus; as well, perhaps, as the production of a hybrid population with a cranial form intermediate to the two others. Moreover, the two principal forms of British cranium are here described as dolichocephalous and brachycephalous in a relative sense; and it must not be forgotten that no trenchant line divides the one from the other, but that dolichocephalism, in British as in other skulls, merges in brachycephalism, through an intermediate ovoid form (*mesati-* or *ortho-cephalism*), by insensible gradations. It thus occurs that some of the skulls from the long barrows which are the least dolichocephalic may have the same proportion of breadth to length (·74, ·75, or ·76) as others from the circular barrows, which are the least brachycephalic. Nothing is to be inferred in such a case from one or even more skulls, separated from their proper series, or from those with which they were found. When, however, other characters are considered, the difficulty is removed; and it is usually possible to refer even a single oval British skull to its actual class, whether dolichocephalous and pre-Celtic, or brachycephalous and Celtic. In the skulls from the long barrows the superciliaries are usually much less marked and developed, the nasals diverge at a somewhat less abrupt angle; and, altogether, the facial characters are less rugged and savage than in the brachycephalous skulls from the round barrows, which have considerable resemblance to those of the Maori race. The facial bones are very decidedly shorter and lower; as likewise the horizontal and ascending branches of the lower jaw, which usually form a more open angle with each other; so that the length of the face, from the naso-frontal suture to the chin, is much shorter in the former than in the latter. They are

likewise almost always nearly orthognathic, with the teeth of medium size; whilst the brachycephalous skulls from the round barrows have the teeth exceptionally large, and the pro

Fig. 8. *Brachycephalic skull from a Round Barrow near Stonehenge, Wilts.*

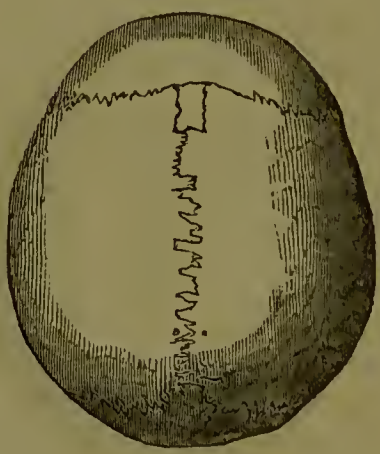

Fig. 9. *Vertical view of the same skull.—Quarter diameter.**

* (*Figs.* 8, 9.) The round barrows, which form a great necropolis around the famous *locus consecratus* of the Belgæ, at Stonehenge, were nearly all excavated by Sir R. C. Hoare, and yielded numerous weapons and other objects, of *bronze* and stone, but none of iron. I have re-opened several of them, with the object of recovering the skulls left by the previous explorer. That here figured, No. 98 of my collection, is from the tumulus, No. 150, on the large map of the Stonehenge district, given in *Ancient Wilts*, vol. i. p. 170. It is a very large and massive calvarium. In the wood-cut, maxillæ of harmonic form have been supplied in outline. Another brachycephalous skull from a round barrow at Codford, Wilts, likewise in the district of the Belgæ of Ptolemy, is given at page 156 (*fig.* 14).

minence of the anterior part of the dental arcade (especially the internaxillary portion), is so great as to constitute a slight, or sometimes a marked, degree of prognathism. The entire maxil-

Fig. 10. *Brachycephalic skull from a Round Barrow, of the Bronze period, at Gristhorpe, Yorkshire.*

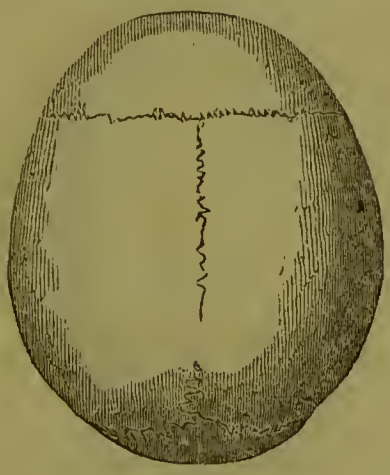

Fig. 11. *Vertical view of the same skull.—Quarter diameter.**

* (*Figs.* 10, 11.) There are many brachycephalous British skulls in collections obtained from round barrows, which may be shown to be of the bronze period; but very few, indeed, with which bronze objects have actually been found. The very perfect skull here figured, from the celebrated tumulus at Gristhorpe, Yorkshire, has therefore a peculiar interest. With it was a bronze dagger-blade, and two or three arrow-heads and flakes of flint. It has been lithographed, and fully described by myself in *Crania Britannica, plate* 52; and has been figured by Professor Retzius, and also by Professor Von Baer. It is here given as a typical instance of the brachycephalous British skull of the bronze period.

lary apparatus is so largely developed, that the term *macrognathic*, introduced by Professor Huxley, is particularly applicable to them. The superior incisive and canine alveoli

Fig. 12. *Dolichocephalic skull from chambered Long Barrow, of the Stone period, at Rodmarton, Gloucestershire.*

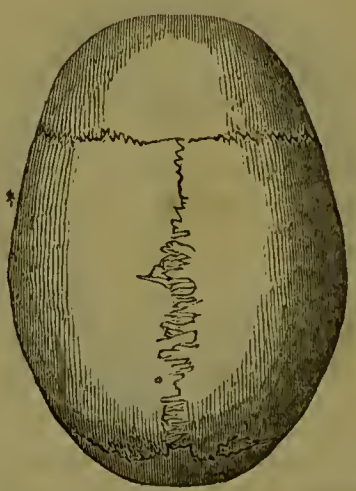

Fig. 13. *Vertical view of the same skull.—Quarter diameter.**

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* (*Figs.* 12, 13.) The skull here figured (No. 163 of my collection), from the chambered long-barrow at Rodmarton, Gloucestershire, is given as a typical instance of the dolichocephalous British skull, of the stone period. In the undisturbed chamber were no traces of metal, but two leaf-shaped arrow-heads of finely-chipped flint. The other skulls from this tumulus are fully described in *Cran. Brit.*, where one of the number, remarkably similar in form with that here figured, has been lithographed (*plate* 59).

are in the dolichocephalic class almost vertical; but in the brachycephalic class they are decidedly oblique, and the prominence of the large incisor and canine teeth is so great, as to give an almost bestial expression to the skull. Turning to the hind head, we find the supra-occipital region full and rounded in the dolichocephalic Britons, giving room for the backward development of the posterior lobes of the brain, which in this series must have materially overlapped the cerebellum; whilst in the other, the occipital tuberosity becomes the most prominent part, and the cerebellum can have been barely covered by the posterior lobes of the brain. As common in long skulls, those of the pre-Celtic Britons are more or less depressed—*platycephalic;* whilst there is a compensatory elevation in the brachycephalic series, or more or less of the form termed *acrocephalic.**

The dolichocephalons skulls from the long barrows differ, likewise, in a very curious respect, from those of the brachycephalous series; viz., in their greater liability to premature obliteration of the sutures. This can hardly be regarded as other than a race-character, which these skulls exhibit in common with those of other dolichocephalous peoples; as Hindoos, Australians, and more particularly, Negroes. This is illustrated by the rarity, in the skulls under consideration, of the persistence of the frontal suture in the adult. Out of about ninety dolichocephalic ancient British crania, calvaria, and frontals, mostly from long barrows, I find, in addition to that of the child from the Tilshead barrow, only two instances of open frontal suture. They are both in skulls of adults, one from the chambered barrow of West Kennet, the other from that of Rodmarton. This gives about one case in thirty. In the brachycephalic skulls from circular barrows, in my collection, or of which I have drawings, the open frontal suture is much more common, or about one in fifteen;

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* So termed by Dr. Barnard Davis. Platycephalism and acrocephalism can only be regarded as of secondary importance. They are evidently complementary,—the one of the brachycephalic, the other of the dolichocephalic form. The term *platycephalic* is here used, as by Virchow, in the sense of *flat-headed.*

being nearly the same as in the Romano-British and Anglo-Saxon series. We are informed by Professor Welcker that this condition occurs very frequently in Indo-European ("Caucasian") peoples, and among Germans in the proportion of at least one in ten; but that in Malays it is about one in twenty, and in Negroes and Americans it scarcely reaches one in forty.*

In the same class of skulls, the sagittal suture has, in several instances, been found more or less effaced, and in two, at least, completely obliterated; the skull in these last cases being of sub-scaphocephalic form. No such effacement has been observed in the brachycephalous skulls from the round barrows. In numerous other instances, marked *infantile obliteration* of the sutures in general is to be observed; and prematurely *senile obliteration* is also very frequent. The causes of this early obliteration, and consequent synostosis of the cranial bones, are probably the same as those producing the like results in Negroes. In the first place must be named a tendency to exuberant ossification, produced, perhaps, by a diet of a highly animalised nature. The special liability of the median longitudinal (frontal and sagittal) sutures to obliteration, is probably to be referred to the corresponding suture margins of the skull-bones coming sooner into contact than in brachycephalous skulls, in consequence of the growth of the brain being chiefly in the longitudinal, and much less energetic in the transverse and vertical, directions.†

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* Welcker, *op. cit.*, pp. 87-106, 143. In one place, Professor Welcker barely admits the possibility of the existence of the open frontal suture in the Negro, and says, he has never seen an instance (page 100). M. Pruner-Bey only observed it once in the large number of African crania which he examined (*Mém. sur les Nègres. Mém. de la Soc. d'Anthrop.*, t. i, p. 328). It perhaps occurs nearly as often as named above, or in one out of forty or fifty skulls. I found in a series of 166 Negro skulls, in the Museum of the Army Medical Department at Netley, four (Ibo, Krooman, and Ashantee), in which this suture is distinctly seen. In the same collection, out of about the same number (169), of skulls of English soldiers (natives of these islands), I counted sixteen in which this suture was persistent. The open frontal suture thus appears to be about as frequent in the English and Irish as in the more brachycephalous Germans, or in both as about one in ten. According to Leach, its occurrence in French skulls, in the catacombs of Paris, was as one in eleven (Clift. *Catal. Mus. Coll. Surg.*, part iii, p. 7).

* Since this memoir was read, I have considered more fully the subject of *Obliteration of the Sutures in one class of Ancient British Skulls*, in a paper submitted to the British Association at Bath, September, 1864.

In many cases the natural brachycephalism of the skulls from the round barrows appears to have been exaggerated by artificial means. Not only is the full and globular form of occiput, so conspicuous in the elongate dolichocephalic skulls, entirely absent, but this part exhibits a more or less vertical flatness affecting the occiput and posterior borders of the parietals. This *parieto-occipital flatness* in British skulls, so designated by Dr. Barnard Davis, was first attributed to the use of a flat and unyielding cradle by Dr. Gosse;* and by Dr. D. Wilson was compared with the like condition in the skulls of many American tribes, accurately described by Morton as "an exaggeration of the natural form, caused by the pressure of the cradle-board in use among them."† The subject has been subsequently further illustrated by Dr. Davis and Dr. D. Wilson; and the inferences arrived at are confirmed by my own

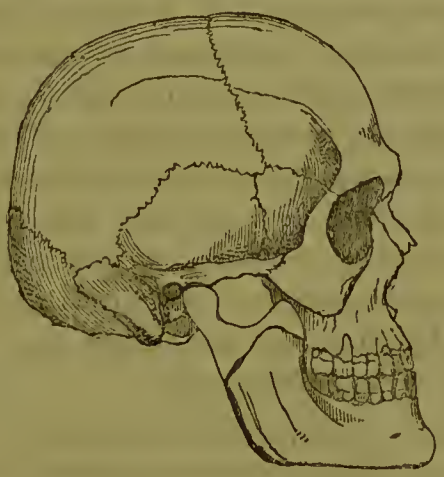

Fig. 14. *Brachycephalic skull from a Round Barrow at Codford, Wilts.*‡

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* It is the *tête déprimée par derrière* of Gosse; *Déform. Artif. du Crânc*, 1855, pp. 67-75.

† Dr. D. Wilson, *Canadian Journal*, 1857, N. S., vol. ii, p. 426; Morton in Dr. Meigs's *Catalogue of Crania*, 1857, pp. 70-71.

‡ (*Fig.* 14.) This skull has been already figured by Dr. J. Barnard Davis, in his paper on *Distortions of the Crania of the Ancient Britons*. It is lithographed, of actual size, in *Cran. Brit.*, (pl. 14). It is repeated here as being derived from a circular barrow in the district of the Belgæ, about ten miles from Stonehenge, and as exhibiting very decided and almost vertical parieto-occipital flatness. The same flatness is also seen in the skull from a round barrow on the plain of Stonehenge, which is figured on page 151.

observations.* In the very brachycephalic skull of a youth of about fourteen years, from a round barrow in the Isle of Purbeck, which I have described in *Crania Britannica* (pl. 45) the form is very similar to that of the famous Scioto-mound skull of Ohio, and of many Peruvian skulls of the Inca race. In this instance, the flatness is of lozenge form, more than four inches long and three broad, and implicates the posterior half of the sagittal suture, which is partly obliterated, no doubt, as the effect of the pressure. The flattening is unsymmetrical, and much more marked on the right side than the left. "The ancient Britons," I observe, "were, to a great extent, a nomadic people, and probably enough used a solid and flat cradle, on which their infants might be secured to the back, and safely transported from place to place." This undesigned deformation has been traced in brachycephalic skulls of the ancient Britons, from barrows in all parts of the island, from the Orcades to Purbeck. As was to have been expected, it is likewise found in skulls of the ancient Gauls. It is very obvious in several in the Museum at the *Jardin des Plantes;* and especially in that from the Meudon dolmen, casts from which are known to us through the kindness and zeal of M. Robert. This skull, already referred to (p. 136, *ante*, figs. 1, 2), has been figured in his paper on this subject, by Dr. Barnard Davis; who observes that the parieto-occipital flatness in this cranium is the most marked he has in any case seen. "The flatness is very vertical, and almost parallel to that of the *vertical line* drawn through the centre of the ear and the point of juncture of the coronal suture with the sagittal." There is great variety in the direction which this flattening of the hind-head assumes. Sometimes it is decidedly oblique, at others more or less vertical; which clearly depends on the form and height of the pillow, by which the infant's head was supported on the cradle-board. Sometimes the flattening inclines to the right,

* Dr. J. Barnard Davis on "Distortions in the Crania of Ancient Britons," *Nat. Hist. Review*, July 1862; Dr. D. Wilson, *Canadian Journal*, No. xli, Sept. 1862; No. xliii, March 1863; *Prehistoric Annals of Scotland*, 2nd edit., 1863, vol. i. My own observations are in *Crania Britannica*, Dec. 5, July, 1862, pl. 45; comp. pl. 42, 43.

sometimes to the left side;—a difference, perhaps, due to the custom of the mother as to suckling the child at the left or the right breast.

No distinct traces of parieto-occipital flatness are to be seen in the dolichocephalic skulls from the long barrows.* On the other hand, many of them present a peculiar post-coronal depression, which is absent in the brachycephalic series, and constitutes a grade of *annular deformation;*† which may have arisen from the use of a tight kerchief or ligature, with which the head of the infant was encircled and tightly bound; as is still done, with the like result, in various districts of France. The annularly-constricted dolichocephalic skulls of one race of ancient Peruvians must have been designedly deformed, by a more severe process of bandaging; but in the British tribes, from the slight degree of the distortion, the absence of design is to be inferred, as in the case of the modern French who have the same usage. It is curious that in the cemeteries of Peru, there are two distinct types of skull; the one dolichocephalic and annularly distorted, the other brachycephalic, with the occiput artificially, though not designedly, flattened; and that the former is generally assigned to the more ancient Aymaras, and the latter to the more modern Inca race. The parallel, though curious, is probably a mere coincidence.

To sum up the conclusions as to the forms of skull from the tumuli of the pre-Roman period in this country, a sort of axiom has, I think, now been established to this effect:—*Long barrows, long skulls; Round barrows, round or short skulls;—Dolichotaphic barrows, dolichocephalic crania; Brachytaphic barrows, brachycephalic crania.* This axiom is evidently not applicable,

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* The dolichocephalic people, whose remains are found in the long barrows, cannot have nursed their infants on an unyielding cradle-board. Rather, from the roundness of the occiput we might be inclined to suspect the use of a peculiar neck-pillow, similar, perhaps, to that of Africa.

† This deformation is designated *tête annulaire* and *tête bilobée*, by Dr. Gosse (*Déform. du Crâne*); according as the ligatures placed on the vertex have been carried below the jaw (*tête bilobée*), or to the nape of the neck (*tête annulaire*). Post-coronal depression is, no doubt, sometimes entirely natural. A test by which such normal depressions may be distinguished from the slighter grades of undesigned annular deformation, is much to be desired.

unless with considerable limitations, to France; but the extent of these limitations must be left to be determined by further investigations in the tumuli of that country, and to the inquiries of French anthropologists.

Though there are great individual differences in the stature of all races, and especially in that of modern Europeans; there is still no doubt that the average height constitutes an important ethnical distinction. It is scarcely necessary to refer to the difference in this respect of the Lapps and their neighbours the Norwegians, at the present day; or to that of the old Romans and the Gauls and Germans, in ancient times. The Britons who, in the reigns of Augustus and Tiberius, visited Rome, were distinguished by their height, which was greater than that of the Gauls; and Strabo tells us that some young Britons whom he saw in that city exceeded the tallest persons there by as much as half a foot.* These men were no doubt from the south-east of the island, probably from the kingdom or dependencies of Cunobeline. To arrive at anything like a correct estimate of the stature of the ancient Britons, the average should be derived from more than ten or twenty individuals. But for the comparison of the stature of the two peoples with whom we are concerned, it may be sufficient to take the thigh-bones of ten dolichocephalic male skeletons from the long barrows, and those of ten brachycephalic male skeletons from the circular barrows. Fifteen of the twenty *femora* were measured by myself; four others are in the Bateman collection. Those of dolichocephalous skeletons are from long barrows in the counties of Wilts and Gloucester; those of brachycephalous, from circular barrows in the counties of York, Derby, Stafford, and Wilts. The average length in the former series is $17\frac{8}{4}$, and in the latter 19, inches. Taking the length of the thigh-bone, according to Dr. Humphry's table, as 27·5 of the stature regarded as 100, these numbers will give 5 feet 5 inches

* Strabo, lib. iv, c. 5, § 2, 3. Strabo adds, that these men were not distinguished for their symmetry or good proportions. They were, perhaps, part of the British embassy to Augustus, also mentioned by Strabo; or of those who took refuge with that emperor, as referred to in the Ancyra inscription.

as the mean stature of the dolichocephalic men, who were buried in megalithic and other long barrows; and 5 feet 9 inches as that of the brachycephalic men interred in circular barrows. Of the latter class, two of the femora measured 19½ and two 20½ inches; dimensions which give a stature of 5 feet 11 inches, and 6 feet 2 inches, respectively. Three of the last were from Wiltshire; the other from the celebrated barrow with the tree-coffin at Gristhorpe, Yorkshire (*ante*, p. 152). Men of six feet and upwards might well surprise the people of Rome, when seen by the side of the comparatively short Italians of the time of Augustus. Of the other series, two thigh-bones measured 17 inches, giving a stature of not more than 5 feet 2 inches. Altogether, the distinction is so marked as strongly to confirm the inference of an ethnical difference in the two peoples, whose skulls are the subject of this comparison.* In France, there is evidence to the same effect. In the remarkable chambered tumulus at Fontenay, already referred to, the skeletons were those of persons of unusually short stature. The thigh-bone of greatest length measured only 15 inches 9 lines French, (equal to 16·8 inches English); which, according to the rule here adopted, gives a stature of no more than 5 feet 1 inch. This is very important; and confirms the opinion as to the identity of the people by whom the sepulchral chambers at Fontenay, and those in the south-west of England, were erected.

A few observations may be allowed on the possible or probable affinities of the two British types, revealed to us by the skulls and other osseous remains from the most ancient tumuli. It is easy to find partial resemblances in skull-forms; but not so easy to find such as can have any ethnic significance. During the last summer I had the advantage of examining the series of sixty Basque skulls, lately added to the collection of the Anthropological Society of Paris. I was at once struck with their great resemblance to the dolichocephalic skulls from the long barrows of this country; and this impression was

* The argument is not invalidated by the occasional occurrence of diminutive individuals in the one, or of tall ones in the other, people. Such exceptions are common in all nations.

much confirmed by the perusal of the two memoirs on these skulls by M. P. Broca,* so rich in details necessary for the comparison before us. On the whole, these skulls are less dolichocephalous than the British series; though M. Broca only regards two of the whole number as brachycephalic. According to the method adopted in this country and in Germany, 12 of the 60, or one-fifth of the whole, have a breadth of ·80 and upwards (·80-·83); and so would be reckoned as brachycephalous. With this exception, the skulls must be ranged in the dolichocephalic and orthocephalic classes; and they may mostly, perhaps, be reckoned as sub-dolichocephalic. The majority of those I measured had a breadth of ·71-·75.† The lengthened form of the skulls is chiefly due to the full and elongate character of the occiput; and the dolichocephalism is of the class designated *occipital* by M. Gratiolet; who by this term distinguishes the long skulls of the African and Oceanic negroes from the *frontal dolichocephalism* of the German (Scandinavian?) races. M. Broca shows, by elaborate measurements, that the form of the cranium-proper, in this modern Basque series, approaches much nearer to that of Africans, prognathic and orthognathic, than to that of Europeans, as deduced from a very large series of modern and medieval Parisian skulls. This is an observation equally applicable to our British dolichocephali. But as regards the face, the Basque skulls show no approach to the African prognathism, whether of the negro or white peoples of that continent. On the contrary, M. Broca remarks that they are actually more orthognathic than the skulls of Europeans in general. This is due to the prominence of the nasal bones and the small size of the superior maxilla; and espe-

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* "Sur les Caractères des Crânes Basques," *Bull. de la Soc. d'Anthrop. de Paris*, tom. iii, 1862; tom. iv, p. 38, 1863.

† It is to be regretted that our French anthropological colleagues do not always distinguish the sex in their cranial investigations. Much confusion arises from averages founded on skulls of the two sexes taken indiscriminately; whilst the sexual characteristics are, of course, not elicited. The distinguished Dutch anthropologist, Van der Hoeven, gives an additional reason why the skulls of males should be preferred for average measures. "In tanta craniorum femineorum penuria, mensuræ mediæ rectius ad virile tantum craninm mihi referendæ videntur". (*Catalogus Craniorum Diversarum Gentium*, 1860, p. 22.) The anthropologist, moreover, is more concerned with the male skull, in which the race-characters are the most marked.

cially to the slight projection of the dental arcade, or alveolar border of that bone. Here, again, a correspondence with the British dolichocephali is to be observed; as well as in the fact

Fig. 15. *Dolichocephalic skull of a Basque, of the province of Guipuscoa.*

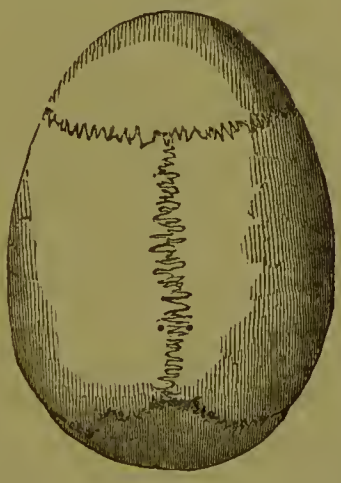

Fig. 16. *Vertical view of the same skull.—Quarter diameter.**

that though the cranial capacity is large, the occipital tuberosity or *inion* is slightly developed; which seems to indicate that nei-

* (*Figs.* 15, 16.) The wood-cuts here given have been drawn from the cast of a skull, which I owe to the kindness of M. P. Broca. It is that of No. 21, of the Basque series, in the collection of the Anthropological Society of Paris. In the former figure, the lower jaw has been supplied in outline. This, which may be regarded as harmonic, has been sketched from that of a dolichocephalous British skull, from the long-barrow at Dinnington, Yorkshire.

ther people were very tall or very muscular. From these researches, M. Broca concludes that if the origin of these Basques is to be sought beyond their own country, it is not among the Celts or other Indo-European peoples, but rather towards the northern zone of Africa that researches should be directed. It is here important to remember that, from his curious microscopic investigations into the structure of the hair, M. Pruner-Bey has shown that the Basques differ from the Aryan stock as much by their hair as by their language.

It is, however, highly probable that the present Basques are far from being a pure race; and the very opposite statements of travellers, as to their cranial form and stature,* are best explained by this admission. The examination of Basque skulls from other localities, and of other specimens of their hair, is still desirable. At present, facts are decidedly opposed to the opinion of Retzius and others, that the Basques are of Turanian origin. That they are the lineal descendants of the ancient Iberians, is now generally admitted by scholars. That the Iberians had their origin in northern Africa, or at least came from that country, is an opinion not without able advocates. It is admitted on all hands that the Libyan or Berber race extended itself, in the earliest times, to Malta, Sardinia, and other islands of the Mediterranean. It is the general opinion that the Guanches of the Canaries had a similar origin; and, as Prichard thought, the Ligures likewise.† The examina-

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* See these statements in Belloguet (*Ethnog., Types Gaulois*, pp. 146, 212-235. In opposition to the prevailing dolichocephalism of the sixty skulls obtained by MM. Broca and Velasco, a series of measurements of the heads of nineteen living Basques, by the astronomer, M. d'Abbadie, is adduced by M. Pruner-Bey. Of these, twelve are said to be decidedly brachycephalic (·80-·90), and only one dolichocephalic (·71); the other six being of intermediate proportions. Just exceptions were taken to these measurements on the living head (*Bull. de la Soc. d'Anthrop.*, iv, 33, 71); whilst, it may be added, even if a large proportion of Basque skulls should prove to be brachycephalous, the question, as to how far this may have originated in a Celtic admixture, would still remain for inquiry.

† Since the above was written, the very learned and elaborate *Memoir* by Dr. G. Nicolucci, *La Stirpe Ligure in Italia* (*Atti. R. Acad. delle Scienze Fisiche e Matemat.*, vol. ii, Napoli, 1864), has reached me. In this memoir, nearly all the most recondite questions connected with European ethnology are discussed in a manner which must command great consideration. Dr. Nicolucci opposes the opinion of the Libyan and Berber origin of the ancient Ligures, and maintains the brachycephalous character of their

tion and comparison of a sufficient number of ancient and modern skulls from these countries, might enable us to decide the question of the origin of the ancient Iberians, and through them of the Basques. Two skulls from Malta,—one in the Morton collection, from the caves of Ben-Djemma, and the other in the Library at Valetta, from the ruins of the Hagiar Kim,—probably belong to the African aborigines. They are both dolichocephalic, and more or less prognathic, the last-named especially so. This prognathism, which connects these two skulls with the African type, distinguishes them from that of the Basques in the Paris collection, which, we have seen, are very orthognathic. At a very early period, the Mediterranean islands and Spain received colonies of Phœnicians, whose settlements were of great importance and extent in the peninsula, where it is known that they mixed with the native Iberians. The Phœnician skull-form, like that of the Jews and Arabs, was no doubt ovoid or dolichocephalic, and likewise orthognathic. It is, therefore, worthy of inquiry, whether the dolichocephalic and orthognathic character of the Basque skulls may not be traceable to a Phœnician source. A greater number of Phœnician skulls than at present available are required for the purposes of such an investigation; but that found at Tharros, in Sardinia, and recently described by Dr. Nicolucci and Dr. Barnard Davis, is suggestive of considerable resemblance.

In order to connect the dolichocephalic crania from the megalithic tombs of the stone period in Britain, with those of the Basques, and, through them, with the ancient Iberians, we require to know the form of the ancient Iberian skull, as revealed to us by researches in the most ancient tombs of Aquitania and Spain, and especially in the south of the Peninsula. At Antequera, in Seville, the ancient Bætica, near the immense megalithic tomb which is there open to inspection, there are two mounds, by which other sepulchral chambers are probably

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skulls (·85-·90), from three specimens, dug up near Modena and Reggio. The prevailing skull-form of the modern Ligurians and Piedmontese is shown to be brachycephalous, and believed to be the direct descendant of that of ancient Liguria. The whole memoir is strongly in favour of the Turanian hypothesis, as maintained by Retzius, Von Baer, and others.

concealed.* How much it is to be desired that these should be explored, and that any skulls thence obtained, should be carefully preserved and studied. The form of skull which prevails in the Peninsula, at the present day, also requires to be inquired into, more than it has yet been. So far as I have been able to ascertain, it is preponderatingly dolichocephalous, and is thus strongly contrasted with the more common cranial form of modern France. In the collection of Professor Van der Hoeven are five skulls of Spaniards, all of which (·75-·78) fall short of brachycephalous proportions. In that of Dr. Barnard Davis, are seven skulls of male Spaniards and Portuguese, equally ovoid or dolichocephalous (·73-·79); and the same may, I believe, be said of three Spanish skulls in the museum of the Army Medical Department at Netley. So far as these limited observations go, they are in favour of the modern Spaniards having descended from a predominating dolichocephalous people.

That the Iberian race extended itself into Gaul, at least as far as the Garonne, is on all hands admitted. The limits of its original distribution in that country form a legitimate subject for inquiry. In Britain, many circumstances point to an Iberian source for at least part of the earliest population, especially in the south-west of the island. Tacitus remarks the dark complexion and curly hair, which, in his day, were believed to indicate the Iberian origin of the Silures,† especially named, perhaps, as representative of the south-western tribes. The description of the Cassiterides preserved in Strabo is, no doubt, likewise applicable to the Damnonian peninsula, also the place of resort of the Phœnicians of Gades. This evidently very ancient notice represents the inhabitants as nomadic and pastoral, and as habited in long tunics covered

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* See the *Memoir* by Sen. Mitjana; and Lady L. Tenison's *Castile and Andalusia*, p. 271, 1853.

† "Silurum colorati vultus, torti plerumque crines, et posita contra Hispania, Iberos veteres trajecisse easque sedes occupasse, fidem faciunt" (*Vit. Agric.*, c. xi). Dionysius, and his paraphraser Priscian, say expressly that the Cassiterides were peopled by the Iberians: "populus tenuit quas fortis Iberi" (Dion., *Peric.*, v, 563; Priscian., *Perieg*, v, 578). The question of an Iberian origin for an intrusive or pre-Celtic population in Britain is discussed in its historical bearings, *Cran. Brit.*," chap. v, § 2, pp. 52-58.

by black mantles—a garb apparently identical with that of the Iberians, who are likewise described as *melanchlæni*, or dark-robed,* and which is in striking contrast with the bright party-coloured dress of the Gauls. Altogether, the doctrine of an Iberian, or Ibero-Phœnician origin of a very early, perhaps the earliest, population of at least part of Britain, though not as yet proved, derives much additional weight from the comparison here instituted of the skulls of the British dolichocephali of the stone period with those of the Basques.

That the brachycephalic skull-form of the bronze-period in Britain was introduced into this island from Gaul, and was the type of the Celtic skull, at least that of the dominant race, appears to me to be proved. What may have been the origin of this "Turanian" type of skull, and how it became that of a Celtic-speaking and so-called Indo-European people; or, conversely, how the Celtic became the language of a people with such a skull-form; are important questions for the investigation of the anthropologists of Europe. In the mountainous regions of Switzerland, and especially, as shown by Von Baer, in the Rhætian Alps, this brachycephalic type, the lineal descendant of that here described as Celtic, still generally prevails. It is evident that much requires to be ascertained as to the actual distribution of this type, both in ancient and modern times; by the careful comparison of modern skulls with a sufficient number of those from the oldest tombs in all the countries of central and eastern Europe. That the short round form of skull is much more extensively distributed in Europe than has been usually believed, is obvious. By Retzius and most others, the Germans are described as dolichocephalic; but Professor Welcker, of Halle, clearly shows that even they are really brachycephalous. Out of thirty male skulls measured by him, eighteen have a breadth of ·80 and upwards (·80-·89), and twelve vary from ·74 to ·80. The mean breadth of these thirty skulls is 805 to the length taken as 1000.† The Slavonian peoples—Wends, Slovaks,

* Strabo, lib. iii, c. 5, § 11; comp. lib. iii, c. 3, § 7; Diod. Sicul., lib. v, c. 33.

† Welcker, *Wachsthum und Bau des Menschlichen Schädels*, s. 45, t. 17, 1862.

Poles, and Russians—who speak languages of the Indo-European class, have very broad skulls, with a breadth of from ·80 to ·84 and ·88 to the length.* The Lapps are equally brachycephalic; but, from their short stature and allophyllian language, which imply an essential difference of race, can hardly be compared with the broad-skulled, but tall Slavonians of central and eastern Europe. On the other hand, the Scandinavians (Swedes and Norwegians) are of the most dolichocephalous of peoples. The ancient Anglo-Saxons were dolichocephalic in a less degree, or, more strictly speaking, orthocephalous. The ancient Greeks and Romans had likewise ovoid skulls, though with superadded features of their own. Whether, in accordance with the common opinion, proof is to be obtained of the immigration into Europe, from high Asia, of Indo-European peoples having a dolichocephalic type of skull, can only be satisfactorily determined by long-continued researches on the form of the skulls found in the earliest, or at least in pre-Roman, graves. Meanwhile, the idea of a connexion between the ancient Celtic brachycephalic type, and that of the modern Mongolian, or so-called Turanian peoples of Asia, cannot be overlooked; and remains for explanation, when the actual facts shall have been better ascertained than they are at present.

In conclusion, I submit the opinion that the accurate observation, description, and measurement of skulls, ancient and modern, is everywhere to be desired, before the solution of the complex problem of the origins of the different European peoples can be satisfactorily attempted. Premature attempts to reconcile the results deduced from scientific craniology, with those arrived at by philological methods, can only result in disappointment. As one element for the solution of the problem referred to, I have in this paper endeavoured to place clearly before the reader the results obtained, after a careful and long-continued study of the two types of ancient British skulls, and, in a less degree, those of ancient Gaul.

* Professors von Baer and Kopernicki, *Bull. de l'Acad. Imp. des Sciences de St. Petersbourg*, 1863, tome iv, p. 358.

PART II. WITH APPENDIX OF TABLES.

In the measurements of skulls given in the tables in this appendix, I have confined myself to those principal dimensions which are essential for the purpose of conveying an accurate notion of the size and proportions of the several skulls embraced in them. With this object, seven measurements are given :* I. The *capacity*, expressed in English cubic inches; the capacity being ascertained by gauging with dry white sand of the sp. gr. of 1·425, and multiplying the number of ounces (av.) by 1·22. To reduce the capacity in cubic inches, as expressed in these Tables, to that in cubic centimeters, the amount must be multiplied by 16·385. II. The *horizontal circumference*, taken with a tape, passed above the orbits and over the most prominent parts of the occiput. This measurement is of great importance when, in consequence of the imperfect state of the skull or from other circumstances, the internal capacity cannot be ascertained. Of it Professor Welcker has observed, "No other skull measurement affords in itself so safe a conclusion as to the dimensions of the cranial cavity, and hence as to the weight of the brain, as the horizontal circumference."† III, IV, and V. These are the *three great diameters* of the skull, taken, as are the measurements which follow, with callipers; III, the *length*, measured from the glabella, about an inch above the naso-frontal suture, to the most pro-

* The measurements here adopted correspond, in the more important particulars, with those severally employed by Professor Van der Hoeven (*Catalogus Craniorum Divers. Gentium* (1860), by M. Broca, in his later contributions and memoirs (*Bull. de la Soc. d'Anthrop., passim*), by M. Pruner Bey (*ibid.*, t. v, p. 111), and by Professor Huxley (Lyell, *Antiquity of Man*, 1863, p. 87). Those who desire to study more minutely the dimensions, form, and proportions of the skulls of ancient Britons and Scandinavians, will find Tables of Measurements, in much greater detail, in the concluding pages of *Crania Britannica*, 1856-1865.

† *Wachsthum und Bau.*, p. 140.

minent part of the occiput, whether at or above the *inion* or spine. IV. The greatest *breadth,* measured between the most prominent parts of the parietal or temporal bones, as the case may be. V. The *height,* measured from the plane of the occipital foramen to the most elevated part of the vertex, about an inch behind the junction of the sagittal and coronal sutures. VI. The *length of the face-skull,* measured from the naso-frontal suture to the point of the chin. VII. The *breadth of the face-skull,* measured between the most prominent parts of the zygomata. These different measurements are expressed in linear inches and tenths, English. To convert these into millimeters, it is requisite to multiply by 2·5399. The two remaining columns, A and B, give the *relative proportion* of the breadth and height to the length, in which the latter is reduced to the common module of 1·00. The first of these proportions, A, is the important one, called the "*Cephalic Index*" by M. Broca; by which the tendency to the long or dolichocephalic form of skull on the one hand, or to the short or brachycephalic form on the other, is numerically expressed. The other, B, in like manner, expresses in numbers the tendency to the depressed or platycephalic, or to the elevated or acrocephalic form. In the two columns, the low figures point to dolichocephalism and to platycephalism, the high figures to brachycephalism and to acrocephalism respectively; whilst those of medium value represent a more regularly ovoid and more equally developed form of skull, both as respects length, breadth and height, which may be defined as orthocephalism.

It is not, indeed, without good reason, that the simple dichotomous division of skulls introduced by Professor Retzius, into the two groups of *dolichocephalic* and *brachycephalic,* is being abandoned by craniologists as artificial, inaccurate and unsatisfactory. M. Broca appears to have been the first to show this; and to divide skulls into three groups, separating from the two extreme forms of broad and long, an intermediate or medium ovoid form, called by him *mesaticephalic* (μέσατος, middle).* In the following year, Professor Welcker discussed

* *Bull. de la Soc. d'Anthrop. de Paris,* 1861, t. ii, fasc. 4.

this question at length, coming to the same general conclusion, though apparently unaware of M. Broca's observations.* He shows, by a series of measurements of the skulls of nearly all races, that a form "which in respect to length and shortness holds a medium place", is to be admitted as forming, with long and short skulls, a natural division. This intermediate or ovoid form he names *orthocephalic*, a term which, on the ground of euphony, is perhaps preferable to the "mesaticephalic" of M. Broca. Professor Welcker appears to me warranted in classing all skulls as dolichocephalic in which the breadth does not exceed ·70 or ·71 in proportion to the length, and all in which it amounts to ·80 and upwards as brachycephalic. The figure ·75 is thus "the centre of orthocephalism". The view taken by Professor Huxley is identical. "When the transverse diameter," says the English professor, "is less than seven-tenths of the antero-posterior, the skull is *oblong* or "dolichocephalic"; when the transverse diameter is from seven-tenths to eight-tenths of the length it is *oval;* and when more than eight-tenths it is *round* or "brachycephalic."† The estimate of Professor Welcker differs somewhat from that of M. Broca, whose middle or mesaticephalic class, as deduced from a large series of skulls, from mediæval and modern cemeteries of Paris, is placed higher in the scale, though extending only from 7·77 to 7·99 (·80). With M. Broca, it is desirable to admit a *sub-dolichocephalic* and a *sub-brachycephalic* class. These appear to me to be most conveniently obtained by assuming for the absolutely orthocephalic class the three figures of ·74, ·75, and ·76; whilst the lower figures of ·73, ·72, and perhaps ·71, form the sub-dolichocephalic, and the higher figures of ·77, ·78, and ·79, the sub-brachycephalic class. We shall at least find that this method is very applicable to the right estimate of the measurements of ancient British and Gaulish skulls. With these preliminary remarks I may now proceed to observe on the Tables in succession.

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* *Wachsthum und Bau.*, pp. 41-46, 57, pl. 17.

† "Lectures," *Med. Times and Gazette*, 26th March, 1864, p. 344. M. Pruner-Bey has adopted a similar classification into dolichocephalic, orthocephalic, and brachycephalic, or *ellipsoid, oval,* and *round* skulls.—*Bull. de la Soc. d'Anthrop.*, 1864, t. v, pp. 110-125.

Table I.—In this, as I think, very important table, I give the measurements of fifty ancient British skulls, arranged in ascending order, from the extreme of dolichocephalism on the one hand, to that of brachycephalism on the other. The fifty skulls, all of which are believed to be those of men, are arranged in two series, twenty-five being from chambered or earthen *long barrows*, and twenty-five from *round barrows*, or from small cists which were no doubt originally covered with such tumuli. Of the series from the long barrows, five are engraved and described in *Crania Britannica;* eighteen are skulls or calvaria in my collection, and the other two are in the Museum of Anatomy of the University of Oxford. Of the series from the round barrows, twenty-one are engraved and described in the work already named, and four are in my own collection. Lest it should be supposed there has been any bias in the selection of skulls favourable to a foregone conclusion, some explanation may be requisite. In the complete work, *Crania Britannica*, there are descriptions of thirty-five ancient British skulls, of which five are from long barrows, the measurements of which are given in my first series, as those of twenty-one others from round barrows are in the second. The remaining nine skulls are excluded from the Table for various reasons. One (Pl. 35), is the skull of a woman; another (Pl. 45), is that of a boy; two (Pls. 22, 55), are from Ireland; one (Pl. 21), from Orkney; one (Pl. 25), is too imperfect to give the measurement of breadth; another (Pl. 23), is mislaid, and some of the measurements not attainable; and, lastly, two (Pls. 35, 58), are from graves which, so far as appears, had not been covered by barrows either of the long or round form.

It will be seen from the Table, that the regular gradation of ascending brachycephalism is departed from only in two instances. There are two skulls in the first division with a relative breadth of ·75; and two in the second with a relative breadth of ·74. The two series meet almost exactly in the orthocephalic centre of ·75, but with this slight overlapping of the figures. In the first series, the relative breadth varies from ·67 to ·75; in the second from ·74 to ·87. The one is

essentially dolichocephalous, the other still more essentially brachycephalous. A certain number of skulls in the one series may be classed as sub-dolichocephalic, a few in the other as sub-brachycephalic, and a very few in each as orthocephalic or ovoid. But, in the sciences of observation, "it is the *averages* which afford the best evidence; they alone have an absolute value and lead to positive results". Now we find that the twenty-five skulls from long barrows have an average relative breadth of ·71, which, according to the view here adopted, is all but absolutely dolichocephalous; whilst the twenty-five skulls from the round barrows have an average relative breadth of ·81, which even exceeds the brachycephalous standard. The two classes differ nearly as much in their relative breadth as do a series of the skulls of Hindoos or Negroes from others of Germans or Slavonians.* Surely if dolichocephalism and brachycephalism have ever, as characters, a race-value, they have it in this instance. By mingling the skulls of the one category with those of the other, it is possible to modify the averages to almost any extent, in proportion to the amount of admixture, and in this way to mask and confuse the actual results. Thus, if the two classes of skulls be in equal numbers, as in the Table before us, the relative breadth would be ·76, or almost exactly that of the ovoid or orthocephalic type; and so the dolichocephalism of the one, and the brachycephalism of the other, would be equally lost sight of in such a method of analysis.

Another interesting result elicited by this Table, which may deserve treating somewhat at length, is the *capacity of the skull*. This is seen to be very high, and the difference in regard to it in the two series is small. The dolichocephalous skulls from the long barrows have an average capacity of 99 inches, or 1622 cubic centimeters; and the brachycephalous skulls from the round barrows one of 98 inches, or 1605 cubic centimeters. This large capacity cannot be entirely explained by the idea of selection; it being obvious that any which has been exercised will have been in favour of the most characteristic and best preserved, rather than of the largest, skulls.

* Comp. Welcker, *op. cit.*, *Taf.* 17.

It is, indeed, very possible, that such of the ancient Britons as were carefully buried under barrows were for the most part of the rank of chieftains; who excelled the commonalty and the slaves in mental endowment and in energy, which qualities were represented no doubt by a corresponding amplitude of cerebral development.

It is desirable to compare the capacity of our ancient British skulls with that of the skulls of various modern Europeans, ascertained by a similar method of gauging the interior of the dry cranium.* The large series of 357 skulls, obtained by M. Broca from three of the cemeteries of Paris, are shown by him to have an average capacity of 1432 cubic centimeters, or 87 inches English. As, however, half of these skulls are probably of women, we may, in order to obtain the capacity of the

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* In the year 1849, I commenced the practice of gauging ancient skulls with white Calais sand, of sp. gr. 1·425. This was the method of Sir William Hamilton, who, we are told, gauged "nearly three hundred human skulls of determined sex, and thus recovered the original weight of the brain." (Monro *On the Brain*, 1831, p. 4.) The method is the same, whether we employ sand with Hamilton, lead-shot with Morton and Broca, millet-seed with Tiedemann, or pearled wheat with Welcker. The organic substances seem, however, less eligible than the inorganic (sand or shot), as their sp. gr. must be more liable to variation. In many ancient skulls, it does not suffice to stop the crevices with cotton wool, but considerable holes require to be pasted over with paper, which must be allowed to dry. To recover the weight of the brain, the difference between the specific gravity of the substance employed to gauge the skulls, and that of cerebral substance, has to be calculated. The specific gravity of this latter I have been accustomed to take at 1·040, as it would appear from the observations of Dr. Sankey (*Brit. and For. Med.-Chir. Review*, 1853, vol. xi, p. 240; comp. Dr. Bucknill, *ibid.*, 1855, vol. xv, p. 207). It may be a little less, or not more than 1·036, as the later observations of Dr. Peacock (*Pathol. Transact.*, vol. xii, 1860-61) would seem to show. This, however, makes scarcely any appreciable difference in the calculated weight of the brain, amounting, as it would do, to not more than one-fourth of an ounce avoir. The weight of the brain thus obtained by calculation, requires to be corrected by the deduction of the weight of the dura mater and the fluids. For these I deduct five ounces for the skulls of men, and four and a half ounces for those of women, being their weight as ascertained by me in several autopsies. This estimate I have since found corresponds very nearly with that of Professor Huschke, whose observations at the time were quite unknown to me. It is worth noting, that the weight of sand by which a skull is gauged, when divided by two-thirds, or ·66, very exactly represents the weight of the brain, as calculated and corrected by the more elaborate method now described. If the object in gauging a skull be simply that of ascertaining its cubic capacity, the simplest method is to measure the contained sand in a glass cylinder, graduated in cubic inches, or cubic centimeters, or in both. Where this has not been done, the ounces of sand may be converted into cubic inches by multiplying by 1·22; or it may be calculated by a more precise method, from the specific gravity of the sand, by the rule of proportion.

male skull, add to these numbers of M. Broca five per cent., or half the generally estimated difference between the male and female skull;* thus raising the capacity to 1502 cubic centimeters, or 91 inches. This gives us the great difference of 100 and 120 cubic centimeters, or of seven and eight cubic inches, in favour of the capacity of the two series of ancient British skulls as compared with that of these modern and mediæval French crania.†

A still greater difference is seen when we turn to the lucid tables of Professor Welcker, and find that the average capacity of thirty German male skulls does not exceed 1,450 cubic centimeters, or 88 inches English.‡ The difference between the capacity of these skulls and that of our ancient Britons, is one of 155 and 172 cubic centimeters, or 10 and 11 inches respectively.

Skulls of Men.	No.	Weight of Sand.	Cubic capacity. Inches.	Cubic capacity. Centimeters.
French (*Broca*)	357	74	91	1502
German (*Welcker*)	30	72	88	1450
English, etc. (*Morton* and *Meigs*)	28	77	94	1540
Ancient Britons.				
Long Barrows	18	82	99	1622
Round Barrows	18	80½	98	1605

On the other hand the difference is not so great when a comparison is instituted with the capacity of twenty-eight male skulls in the Morton collection, which were gauged by Dr. Morton and Dr. Meigs, and arranged by the latter.§ The skulls are those of Englishmen, Anglo-Americans, Irish, Germans and Swedes. The mean capacity is 1540 cubic centimeters, or 94 inches English. Even here the difference in favour of the ancient Britons is considerable, and amounts to 65 and 68 cubic centimeters, or to four inches English, for the brachycephalous, and to five for the dolichocephalous skulls.

Weight of Brain.—The great size of the ancient British skulls

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* Welcker, *op. cit.*, p. 140:—"The cranial capacity of the male (1450 C. C.) is to that of the female as 100 : 90." This aphorism is confirmed by numerous observations by different authors, as to the weight of the brain in the two sexes.

† Broca, *Sur la Capacité des Crânes Parisiens.—Bull. de la Soc. d'Anthrop.* 1861, t. iii, fasc. 1.

‡ Welcker, *op. cit.*, pp. 35, 130, 140.

§ *Catalogue of Human Crania*, by J. A. Meigs, M.D., 1857, pp. 5, 17.

and of the contained encephalon is equally apparent when we compare what the weight of the brain must have been with the actual average weight of the same organ, as ascertained at the present day by different observers in various countries of Europe. The great table of the weights of the brain, principally of Germans and French, collected by the late Professor Wagner, comprises 964 instances.* This has been subjected to analysis by two able anatomists and anthropologists, Professor Broca of Paris,† and Professor Welcker of Halle.‡ The latter confines his attention to the weight of the brain between 20 and 60 years of age, which leaves 673 examples; viz., 415 of men and 258 of women. This gives 49 ounces (av.), or 1390 grammes, as the weight of the adult male brain; and 44 ounces, or 1250 grammes, as that of the female. M. Broca excludes all the brains of insane persons in Professor Wagner's table, as well as those of others in which there may be a suspicion of disease, but retains those of persons of more than 60 years of age. The total number is thus reduced to 276, viz., 167 of men and 109 of women. The average weight thus obtained is about 48 ounces, or 1362 grammes; the diminution of one ounce being due to the presence of the brains of persons of more than 60 years; there being a slight decrease in the weight of the brain in advanced life. The same weight of nearly 48 ounces is to be deduced as that of the English male brain, as observed by Dr. Sims in the poor of London at the parochial infirmary of Marylebone;§ and in the same establishment by Dr. Boyd, from a much larger series of observations.‖ After

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* *Vorstudien des Menschl. Gehirnes*, 1860. A large proportion of Wagner's weights are those of the brains of the insane, collected by M. Parchappe in France, and by Herr Bergman in Germany. Dr. Sims's weights, likewise, enter into this table.

† *Sur le volume du Cerveau*, etc., *Bull. de la Soc. d'Anthrop.*, 1861, t. ii.

‡ *Wachsthum und Bau.*, p. 36.

§ *Med-Chir. Transactions*, vol. xix, pp. 349, 361, 1835. I follow Dr. Peacock's analysis of Dr. Sims's observations.

‖ *Tables of the Weights of the Body and Internal Organs from 2614 Post-Mortem Examinations. Phil. Trans.*, 1861, p. 241. Of the 1,459 adults whose brains were weighed by Dr. Boyd at the Marylebone Infirmary, not less than one-sixth of the whole were registered as dying from diseases of the nervous system; and Dr. Boyd informs me, that a large proportion of these were cases of acute and chronic insanity and epilepsy, and that a few were idiots; but in addition to these, there were numerous cases of apoplexy.

deducting from the entire series of 2,086, the brains of persons of less than 20 and more than 60 years, there remain 795 instances, viz., 425 of men and 370 of women, the average weight in the former being found to be nearly 48 (47·8) ounces. Dr. Boyd has also weighed the brains of 527 insane persons; from which the average weight of the male brain at the same period of life is found to be almost one ounce and a quarter less than in the other series (for the most part sane), or 46·6 ounces. These last weights are of the brains of the insane poor of Somersetshire. They differ by an excess of one-third of an ounce from my own observations of the weight at the same period of life taken from 470 autopsies of the same class of the insane in the neighbouring county of Wilts. In 174 brains of men of less than 60 years, I find the average weight to be 46·3 ounces.*

Brains of Men.	No.	20-60 yrs.		60-90 yrs.		20-90 yrs.	
		Oz. av.	Grmm.	Oz. av.	Grmm.	Oz. av.	Grmm.
Germans, French, etc.—							
(*Wagner*, after *Broca*)	167	48·3	1371	46·7	1326	48·	1362
(*Wagner*, after *Welcker*)	415	49·	1390	—	—	—	—
English, (Marylebone) (*Boyd*) ...	699	47·8	1354	45·9	1300	47·1	1334
Scotch, (Edinburgh) (*Peacock*) ...	183	50·	1417	48·8	1382	49·7	1408
Insane.							
English, (Somerset) (*Boyd*).....	294	46·6	1320	47·	1331	46·7	1323
,, (Wilts) (*Thurnam*)	257	46·3	1312	46·1	1306	46·2	1309
,, (York) (*Thurnam*)	28	48·7	1380	42·6	1207	46·3	1312
Ancient Britons (calculated weights).							
Long Barrows	18	...	...	...	...	54·	1530
Round Barrows	18	...	...	...	...	53·5	1515

The less extensive but accurate observations of Drs. Reid and Peacock, which have been carefully analysed by the latter, are principally of the brains of Scotch Lowlanders in the Royal Infirmary of Edinburgh. They comprise nearly 400 observations at all ages, of which 157 are of the brains of men, and

* The difference in the weights of the brains of women, as observed by Dr. Boyd in Somersetshire, and by me in Wilts, is considerably greater than in those of men, and amounts to very nearly 2 (1·93) oz. It was 43·18 oz. for Somerset, and 41·25 oz. for Wiltshire, in adults of less than 60 years. Formerly, at the Retreat, York, I weighed the brains of fifty-nine insane persons from all parts of England, chiefly of a more educated middle class. The numbers under sixty years of age (17 men and 11 women) are too few to yield certain averages; but the considerably greater weight which they afford, closely approaching to that of the sane brain, viz., 48·7 oz. for the men and 43 oz. for the women under sixty years, is what *à priori* might have been anticipated.

89 of women between 20 and 60 years of age. The average weight of the male brain is found to be upwards of 50 ounces, or 1417 grammes, and that of the female, a little less than 45 oz., or 1275 grammes.* It thus appears probable that the brain of the Lowland Scotch is somewhat larger than that of the English, French and Germans. It is very probable that if observations were made in a sufficient number of persons of a higher rank and more cultivated mind, the average weight of the brain would be found to exceed that hitherto obtained. However this may be, it will be seen that the weight, according to the observations before us, varies between somewhat less than 48 ounces or 1362 grammes, and somewhat more than 50 ounces or 1417 grammes. Now the average weight as calculated from the capacity of the skulls of the ancient Britons must have reached 53½ oz. for the skulls from round barrows, and 54 oz. for those from long barrows; or 1515 and 1530 grammes respectively. This is a very considerable difference, amounting to four ounces (av.) or 113 grammes.

The computed average weight of the brain in the ancient Britons corresponds very nearly with that which is assigned by Professor Welcker to simple or normal macrocephalous heads; or those which, after Virchow, have been designated by the name of *kephalonism*. "Skulls," says Welcker, "of more than 540 to 550 millimeters in horizontal circumference, (the weight of brain belonging to which is 1490 to 1560 grammes, =52½ to 55 ounces, av.) are to be regarded as exceptionally large. The designation of *kephalon* proposed by Virchow, might commence from this point. Men with great mental endowments fall for the most part under the definition of kephalonism. If we consider the relations of capacity, 1800 grammes (=63½ ounces av.) appears to be the greatest attainable weight of brain within a skull not pathologically enlarged.* The brain of Cuvier is perhaps the heaviest of which there is

* Tables of Weights of the Brain, etc., *Monthly Journal of Medical Science*, vol. vii (N. S. i), 1847. Dr. Peacock informs me that among the patients of the Royal Infirmary there were some Highlanders, and a few Orkney and Shetland men. The great majority were, no doubt, Lowland Scotch.

authentic record, and is said to have weighed as much as 1830 grammes, or 64½ ounces (av.), being considerably more than the maximum weight assumed by Welcker.† That of the distinguished physician of Edinburgh, Dr. Abercrombie, closely approached this standard, weighing 1785 grammes, or 63 ounces.‡ Largely developed brains are not, however, *always* connected with considerable ability, and are at times met with in a rank of life in which there is but little room for the exercise of great endowments, supposing them to exist.

In Dr. Peacock's tables, out of the 157 weights of adult male brains, there appear to have been four in which the weight ranged from 61 to 62·75 ounces, or from 1728 to 1778 grammes. The occupations of three of these are stated to have been those of a sailor, printer, and tailor, all apparently of the artisan class. It may, however, be safely concluded, that all brains of a weight of more than 55 ounces, or 1560 grammes, are extremely heavy or *kephalonous;* and that all which exceed 60 ounces, or 1700 grammes, are superlatively so. Of the former there are as many as four, and of the latter nine, out of the 36 skulls on the table, 18 from Long and 18 from Round Barrows, the capacity of which could be taken. Thus, upwards of one-third (36 per cent.), may be styled kephalonous; whilst one-ninth of the whole, or one-sixth of those from

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* *Wachsthum und Bau,* p. 140. Comp. pp. 38-40; also, *Zwei Differm., Gehirngrösse und Intelligenz,* pp. 12-19, 1863.

† I follow M. P. Broca (*Sur le Volume, etc., du Cerveau: Bull. de la Soc. d'Anthrop.,* t. ii) in giving the weight of Cuvier's brain as 1830 ("1829·96"), and not 1861 grammes, as it appears in the great table of Wagner, in which, even when thus corrected, it will still stand as the heaviest healthy brain. The difference between the two weights is little more than an ounce and a quarter, viz., 31 grammes, or 1·3 oz. av.

‡ As reported by Professor Goodsir, *Edin. Med. Surg. Journ.,* vol. lxii, p. 231. The brain of the celebrated preacher, Dr. Chalmers, is reported to have weighed 53 ounces (av.); that of the Lord Chancellor Campbell, 53¼ oz.; and that of the American statesman, Daniel Webster, 53½ oz. See the unsatisfactory article on the last case, *Edin. Med. Surg. Journ.,* April 1853, p. 355; and for the brain of Chalmers, *Edin. Month. Journ. Med.,* March 1851. The brains of each of these three distinguished men slightly exceed the standard of incipient kephalonism, as proposed by Professor Welcker. The capacity of the large English skull, compared by Dr. J. Barnard Davis with the celebrated one of Neanderthal, appears to be identical with that of Dr. Abercrombie, viz., 113 cubic inches, or 1851 cubic centimeters, implying a brain of 63 ounces, or 1785 grammes. *The Neanderthal Skull,* p. 11. *Memoirs of Anthropological Society of London,* vol. i, p. 289, 1865.

the Long Barrows, are exaggeratedly so. In these four last skulls (a 6, 11, 17, b 8), with a capacity from 109 to 112 cubic inches, the brain must have weighed from 60 to 62 ounces, or from 1700 to 1757 grammes; a weight closely corresponding with that of the brain of Dr. Abercrombie. We may fairly presume that these large skulls have been those of British chiefs, some perhaps of Druids; and that they were those of men who held their place in the rude society of the age, in virtue of that ability and energy with which, as it would appear, they were naturally and very largely endowed.

Large Brains of Men.	No.	Equivalent in sand (Oz.).	Weights. Oz. (av.).	Grmm.
Incipient *Kephalonism* of Welcker	–	78¾ to 82½	52½ to 55	1490 to 1560
Extreme of *Kephalonism* of Welcker	–	95¼	63½	1800
Brain of Abercrombie	–	94½	63	1785
Brain of Cuvier	–	96½	64·4	1830
Ancient Britons.				
Long Barrows	7	88½	59	1672
„ „ largest skull (No. 11)	–	92	61⅓	1738
Round Barrows	6	85½	57	1615
„ „ largest skull (No. 8)	–	89½	59¾	1693

Ages of those buried in Long and in Round Barrows.— Before leaving Table I, a curious difference as to the probable ages of the men, the measurements of whose skulls are given in it, must be noticed. Those from the Long Barrows are chiefly of young and middle aged men; whilst a very considerable proportion of those from the Round Barrows are the skulls of the old. This remarkable difference is brought out in the following tabular arrangement. Whilst only four of the first series, as many as thirteen (or one-half) of the second, are assigned to men of upwards of 60, and of these last, eight are from 70 to 75 years of age. The *average* age, calculated from these numbers, gives a difference of ten years; that of the one being 45, and that of the other 55 years. Two explanations of this difference present themselves, both of which appear applicable. In the first place, life was perhaps actually shorter in the rude *stone period*, partly from natural causes connected with the mode of life, and partly from the accidents of war and of the chace. Secondly, we have seen

reason to infer that many of the skeletons found in the long barrows were those of slaves and dependants, who, in accordance with an extensively diffused barbarous custom, had been slaughtered at the graves of their chiefs. For such a fate, the

Probable Ages.	a. Skulls from Long Barrows.	b. Skulls from Round Barrows.
17—20	1 ...	... ..
20—30	1 ...	... ..
30—40	5 ...	... 2
40—50	4 ...	... 5
50—60	10 ...	... 5
60—70	4 ...	... 5
70—75	.. ...	... 8
Totals ...	25 ...	... 25
	Years.	Years.
Average Ages ...	45 ...	... 55

young and comely would most likely be selected. The great majority of the skulls of the second series are those of single skeletons, which have occupied the place of honour in the centre of the round barrows, and they are those, doubtless, of the chiefs and principal men of the British tribes during the *bronze*, and the *bronze and iron transition periods*. They thus belong to an epoch when, in consequence of the development of the arts of material civilisation, life was more prolonged, and had perhaps become more secure. The custom of immolating slaves on the occasion of the funerals of the chiefs seems to have gradually died out; and we find that, in Gaul, Cæsar refers to it as a custom of the times immediately preceding his own.

Table II.—*Measurements of Skulls from Long Barrows.*—In this table are comprised the measurements of various skulls from Long Barrows, which have either been described in the preceding paper,—as the finds of Winterbourne Stoke, Tilshead, and Dinnington, or which have been acquired since it was written. Of the latter, brief notices may here be given. The table itself may be dismissed with very few observations. The results embodied in it accord very nearly with those in the first division of Table I, which they thus serve to confirm and illustrate. In Table II, the measurements of the skulls of women are given in a second division. The averages show that they are somewhat less dolichocephalous than those of

men. They are less elongate, and approach the ovoid or orthoeephalie form. On the other hand, the vertical diameter is proportionately less than in the male skulls; the proportion of height being only as 72 to the length taken as 100; they are deeidedly more platycephalie. Though not shown in these tables, the skulls of women, from the Round Barrows of the Britons, are on the whole less brachyeephalous than the skulls of men from the same tombs. In both, the skulls of women tend a little to the medium, or ovoid form. On all hands we learn that it is in the skulls of men we must look for the raee-eharaeters being developed in the greatest perfeetion.

Skulls from Bowl's Barrow, near Imber, Wilts.—Bowl's Barrow, near Imber, South Wilts, had been opened in 1801, by Mr. Cunnington, and described by Sir R. C. Hoare.* This long barrow is ten and a half feet in elevation, and otherwise of large dimensions. About two and a half feet below the summit, near the east end, was a skeleton with a brass buekle,—a secondary interment, probably, of the Anglo-Saxon period. The skull reeovered at the re-opening is of large size, oval, and somewhat platycephalie, with a very large *foramen magnum*. With it was an immense *vertebra dentata*. At the base of the barrow, at the east end, on a floor of flints regularly laid, was a pile of skeletons "thrown together promiscuously." Fourteen skulls were counted, one of whieh appeared to have been cut in two by a sword. Close to the skeletons was a large cist or hole eut out of the ehalk-rock; and hard by were the heads and slough of the horns of seven or more oxen. No objects of art, either of stone or metal, were found. The skeletons were covered with an immense pile of sarsen stones and flints to the height of six feet, and this was surmounted with chalk-rubble or marlstone, to the complete height of ten feet and a half. I re-opened this barrow in September 1864, and at the base of it found the remains of the skeletons left there by the previous explorer, more than sixty years previously. There were four skulls or calvaria tolerably perfect, or which were restored from numerous frag-

* *Ancient Wilts*, vol. i, p. 87; comp. *Archæologia*, vol. xv, p. 340, 345.

ments. Measurements of them are given in the table. There were the fragments of the skull of a girl of eight or nine years, and portions of jaws, which implied three or four other skulls, one that of a child; being traces of altogether ten or eleven skeletons. There were several portions of cleft cranial bones, such as I have before noticed as found in long barrows. Some of them are perhaps portions of the very skull which attracted Mr. Cunnington's attention. One of the more perfect skulls (No. 211) seems to have been cleft with great violence on the left side. It will be seen that all these crania are very dolichocephalous. The first (No. 210) is a remarkable specimen of synostosis; there being no trace whatever of the sagittal suture. The form is *sub-scaphocephalic*.* The fourth skull (No. 213), may likewise owe some part of its extreme dolichocephalism to the premature and perhaps infantile obliteration of the same suture.

Skulls from Long Barrow, Oldbury, Wilts.—In the same year (1864), in digging in a chalk-pit near the ancient British camp of Oldbury, North Wiltshire, about three miles from the celebrated megalithic circles at Avebury, two or three skeletons were uncovered at the base of the east end of what turned out to be a long barrow, of low elevation. The measurements of three skulls, which, though quite dolichocephalous, are of small size, and not very characteristic, are given in the table. Two of the skulls appear to be those of women, and are in the possession of Mr. Cunnington, of Devizes, who assisted in their exhumation. The other skull, that of a man, has been added to my collection (No. 198). Near the skeletons were a number of flint flakes, with one or two cores, from which they had been broken off. At the centre of the mound was a small irregularly-shaped cist, built up with sarsen stones: it was empty. This tumulus, though of oblong form, has not the unequivocal characters of a long barrow; it appears, however, to have belonged to that class.

* This skull is more particularly described in a paper *On Synostosis of the Cranial Bones in one Class of Ancient British Skulls*, etc., read before the meeting of the British Association at Bath, Sept. 1864. See *Nat. Hist. Review*, April, 1865.

Skulls from Chambered Barrow, Charlton-Abbots, Gloucestershire.—Since the note at p. 12 was written, the chambered tumulus called Belas Knap, near Charlton-Abbots, Gloucestershire, has been further explored. Its general arrangement is the same as that at Rodmarton (*Cran. Brit.*, pl. 59); but it differs in having an exceptional orientation, lying north and south, with the broad end to the north. Near the broad end, a trilith (A), formed by three upright stones, arranged in the form of a Roman H, with a fourth flat stone laid above, was uncovered. With these stones on each side, was connected a

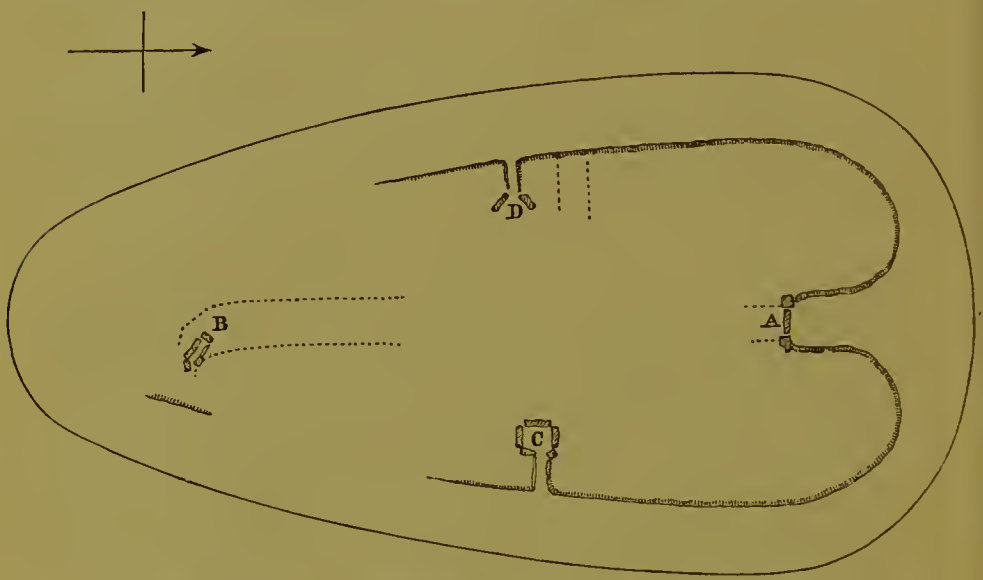

Fig. 17. *Ground-Plan of Chambered Long-Barrow, near Charlton-Abbots, Gloucestershire.—Scale, 50 feet to 1 inch.*

well-formed wall of horizontal dry masonry, which, after forming a sort of avenue leading to the trilith, curved outwards on each side, so as to embrace the entire tumulus. There was no cist or chamber at the broad end; but resting on the large flat stone was a very massive lower jaw, evidently that of an ancient Briton of about thirty years of age, with every tooth complete. On raising the stone, there were found among the rubble the skeletons of a young man of less than twenty, and of five children from six months to eight, years of age. The jaws of the adult were broken, but the teeth were seen to be slightly eroded, and the third molars to have not yet pro-

truded. The femur measured seventeen inches. This skull closely approaches the brachycephalous type, with a relative breadth of ·79; its measurements are given in the table under the letter *D*.* There is some parieto-occipital flatness, and at the coronal end of the sagittal suture is a small Wormian bone. The children's skulls are too fragmentary to permit the type, whether long or short, to be determined. In that of about eight years of age, the frontal suture is persistent. With these skeletons were many bones, tusks, and teeth of pig and horse, with several flakes of flint, one fine one with a delicately serrated edge, and two or three fragments of coarse British pottery. Were the human skeletons found in this part of the tumulus those of victims sacrificed in honour of the dead who were interred in the principal chambers; and if so, is it not probable that they were those of a different tribe, and perhaps entirely different race? The obvious difference of type is in favour of this view. At the narrow or south end of the mound a small cist, or grave, built up of flat stones (B), was uncovered. It contained four or five skeletons. The dimensions of one male and one female calvarium, obtained in a tolerably perfect condition, are given in the table under the letter B. They are both quite dolichocephalous, that of the woman extremely so. In both, the sagittal suture is extensively obliterated; and there is only one parietal foramen, which is of large size, patulous, and with rounded edges. One *femur* measures 18·5, two *tibiæ*, 14·5 inches. There were a few flint flakes, bits of pottery, boars' tusks, two tibiæ of roebuck, and a rudely finished implement of bone, with three perforations at one end. Thus far the tumulus was explored in 1863.

In the following year, more important discoveries were made. These consisted of two sepulchral chambers, one on the east, and the other on the west of the widest part of the tumulus, both opening outwards on the face of the surrounding wall. These chambers were formed of large standing stones, roofed in with others, which had been coved over so as to form

* The measurements of six skulls, distinguished by the letters *A, B, C, D, E,* and *A,* are not included in the averages, as they appear to have belonged to secondary interments, and two are those of infants.

a sort of horizontal arch. The roofs had given way, so that the chambers were filled in with rubble-stone, but otherwise appeared to be undisturbed. The eastern chamber (C) has been completely cleared; the western one (D) as yet only partially so. In the former were the remains of at least twelve skeletons, about half of which appeared to be of either sex, and all of about the middle period of life,—none less than twenty, nor more than about sixty-five years. Up to the present time, (Feb. 1865) the remains of five skeletons have been found in the western chamber. Four appeared to be those of young men of from twenty to thirty years, the fifth, that of a girl of about seven. One humerus, out of three or four from this chamber which have been preserved, presents the perforation of the olecranal fossa, which has been observed in so many ancient Gaulish skeletons from the cave of Orrouy, described further on. Of about nine femora, three from the eastern and six from the western chamber, one measures 15·7; two, 16-16·3; four, 17·3-17·7; and two, 18-18·5 inches. Two lower cervical vertebræ were anchylosed, as before found in several of the long barrows. No implements or other objects, except six horses' teeth, seem to have been found in either chamber.

The measurements of fifteen skulls from these two side chambers are given in the table. With one exception (C 2), all are of the long or narrow-oval type, and with the exception of two others (C 4, C 8), are extremely dolichocephalous. The two skulls, C 1 and C 2, are very perfect and well preserved; they present considerable difference in form. C 1 is massive and heavy, and is obviously that of a powerful man. It is of narrow and elongate form, having a relative breadth (·68) as low as that of any skull in this very dolichocephalous series. The sides are much flattened, so that it approaches the scaphoid form. The frontal is narrow and receding; the supraciliaries remarkably prominent and overhanging; the face short and narrow; the upper maxillæ deeply hollowed; the teeth much eroded and obliquely jagged. The squamous and sphenoid sutures are open; the sagittal extensively obliterated, the coronal less so, and the lambdoid less so still. The left parietal foramen is alone present; it is of large size, with gaping rounded edges.

The skull C 2 departs more than any other from the general type observed in these crania. It is sub-brachycephalous, with a relative breadth of ·77. The sex may be doubtful; but on the whole I believe it to be the skull of a woman.* Whether this implies a variation in the type of the dolichocephalous race to whom I refer this class of barrows, or whether, in this instance, and in that of the skull from near the trilith A, we have a case of admixture of the other race with prevailing brachycephalous type of the skull, can only be conjectured. The general rule is, at least, not invalidated by two apparent exceptions. That the skull before us is that of a woman, appears probable from the very light and delicate texture of the bones, the smoothness of the surfaces, and roundness of all the outlines. The mastoids and inion are of moderate size, and the supraciliaries slightly developed. On the other hand, the ascending ramus of the lower jaw is broad and rectangular, though the chin is moderately rounded. Another skull, C 5, is considerably warped, as the result of *posthumous distortion*, but its type is clearly identical with that of the others.

It is unnecessary to describe the rest of the skulls separately. On the whole, those of men correspond with C 1; and those of women have likewise an aspect in common, which in several instances approaches to a family character. This is likewise the case with the skulls of the young men from chamber D; in which the parietal tubers are more prominent than in those from the opposite chamber. In the majority of these crania, the sagittal and coronal sutures, especially the former, are considerably effaced and ossified; and in a very considerable proportion the ossified sagittal presents a rugose and thickened appearance in the posterior third of its extent, around the seat of the parietal foramina. In scarcely any instance is there more than one of these foramina, which are remarkable for their large size, and patulous and rounded edges. The single foramen is sometimes in the edge of the right, sometimes in that of the left parietal bone.†

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* The crowns of the upper incisor teeth are worn down to the very fangs.

† The skulls from Belas Knap are in the possession of L. Winterbotham,

Skulls from Long Barrow at Dinnington, West Riding, Yorkshire.—The further knowledge which has been obtained of skulls from the long barrows, has very happily not been confined to those of the south-western counties. In the table will be found the measurements of the large series from the long barrow at Dinnington, in the West Riding of Yorkshire, briefly referred to at p. 13. It will be observed, that many of these skulls are of more than average size; generally speaking, they are more highly developed than usual in this class. It is to be regretted that, owing to the circumstances under which they were recovered, by labourers employed in removing the soil of the barrow, less is known of the mode of arrangement of the skeletons than was to have been desired.

Skulls from Long Barrow near Ebberston, North Riding, Yorkshire.—Very recently, the fragmentary skulls from the long barrow, called Seamridge-Howe, near Ebberston, in the North Riding of the same county, also noticed at p. 13, have been sent to me for examination. Five of the calvaria are sufficiently perfect to be measured, and their dimensions are given in the table. These, with four others still more fragmentary, appear to be the remains of five men and four women; four from 20 to 25, and five from 40 to 65 years of age. Of another adult, the fragments are too scanty to indicate either the sex or age. In addition, there are portions of the skulls of four or five young children of from two or three to seven years; making a total of fourteen or fifteen persons. With one exception, all the skulls would seem to have been of more or less elongate dolichocephalous type. There were marks of previous disturbance in the barrow; and Mr. Greenwell believes that the excepted skull (No. 1) belonged to a *secondary interment*, which is the more probable from its porous texture and light colour,—due, perhaps, to its more superficial

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Esq., of Amberley House, Cheltenham, to whom I am indebted for every facility for their examination, and likewise for the ground-plan of the barrow. For the opportunity of examining the tumulus itself, I am under obligations to D. W. Nash, Esq., F.S.A. Its exploration has been effected through the zeal and liberality of T. W. Swinburne, Esq., of Corndean Hall.

position in the barrow. This skull is of moderately brachycephalous type, having a relative breadth of ·80; and its general form corresponds to that of the Round-barrow skulls. I have classed it as that of a man, but it is below the medium size, and as the sexual characters are not well marked, it may be female. Of the four other skulls which can be measured, two, Nos. 2, 4, are moderately (·71), and two exaggeratedly dolichocephalous (·67—·56). The two last, Nos. 3, 5, require particular notice. No. 3 is probably the calvarium of a woman of sixty years, with all the great sutures ossified and nearly effaced. It is the most elongate and narrow cranium I have ever examined; its scaphoid character being most extraordinary, considering that it is not an example of proper *scaphocephalus*, or congenital synostosis of the parietals. The sagittal suture is, however, exuberantly ossified in the interforaminal region, and the obliteration probably dates from the infantile period. There is a single patulous parietal foramen, with rounded edges, in the border of the left parietal; and very distinct traces of a *carina* along the median line of the very narrow and flat frontal. To a small extent, some of the existing narrowness of this calvarium may be due to *posthumous distortion*, the lower edges of the parietals having been pressed inwards by the superincumbent earth.* No. 5 appears to be the skull of a young man of about twenty. All the sutures are perfectly open within and without. It has the same

* *Posthumous distortion* was first observed by me during the winter of 1847-48, in skulls probably Anglo-Saxon, from the tumulus of Lamel Hill, near York (*Arch. Journ.*, vol. vi, p. 33). I at once referred it to the combined effects of moisture and pressure in the grave, and soon afterwards applied to it the name by which it is now generally known. Other examples, more extensively deformed,—for the most part Anglo-Saxon, from time to time fell under my notice. The specimen described, *Arch. Journ.*, vol. viii, p. 173, is in the British Museum. Dr. Barnard Davis, in October, 1848, observed the same form of distortion in an ancient British skull from a barrow at Alport, Derbyshire (*Cran. Brit.*, p. 37-39; where I have also described a most remarkable example from Stone, Bucks, of which a wood engraving is given). The shallow graves of the Anglo-Saxons, often in low and moist situations, are especially favourable for the production of posthumous distortions. I have since found that previously to my exploration of the Lamel-Hill tumulus, the same condition of the bones of the skull had been observed, in 1845, by MM. Serres and Robert, in skulls from the celebrated dolmen of Meudon, near Paris. "Nous devons aussi faire mention de crânes singulièrement déformés, dont le coronal, les pariétaux et

narrow frontal as No. 3, but without any trace of a central keel. There is marked annular depression in the post-coronal region; which, with the full parietal tubers, gives a slightly *klinocephalic* character to the calvarium. The left parietal foramen is a little larger than the right, corresponding with which the left parietal tuber is fuller than that of the opposite side. But for the greater development of these tubers, the skull would be almost as narrow as No. 3.

This skull (No. 5) is, moreover, of great interest, from the clear indications it affords of having been violently cleft at the time of death. The clefts affect the centre and left side of the frontal and left parietal. The numerous fragments of another skull (No. 6) could scarcely fail to convince the most incredulous of their character and origin, the edges of the divided bones being perfectly sharp and clean, and the fragments themselves having a porcelaneous character, quite distinct from that of the uncleft bones. Two, perhaps three, blows must have been inflicted on the head, probably by a blunt instrument, as a club or stone-axe. One, on the frontal region, did not at first split the skull, but broke away part of the outer table, and produced a depression and cracking of the inner. In one or two other very fragmentary skulls, including that of one child, less decided marks of cleavage are seen. The very distinct proofs of it in No. 5, and above all in No. 6, are most important, as establishing the same rites and usages in the north of the island with those I have now so often noticed in the long barrows of Wilts and Gloucestershire. Certain unfor-

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l'occipital étaient déjetés tantôt à droite, tantôt à gauche; mais nous croyons pouvoir attribuer cette bizarrerie à l'action des terres qui ont comprimé latéralement et lentement ces crânes." *Comptes Rendus de l'Acad. des Sciences*, tome xxi, Sept. 1845. The view I have so long entertained of these posthumous distortions has been much contested by English antiquaries and others (see *Athenæum*, July and August, 1859, p. 184, etc.), but appears to be now generally admitted. In France, the learned anatomists and anthropologists, MM. Quatrefages, Gratiolet and Broca, no doubt from independent observations, have altogether adopted it; and, as Professor Owen in this country had previously done, have further illustrated it by the appearances presented by the fossil bones of extinct animals.—*Bull. de la Soc. d'Anthrop.*, t. iv, p. 586. Dr. Henry Johnson has made experiments to show that this distortion is in part due to the chemical influence of free carbonic and nitric acids in the soil. (*Proc. Royal Soc.*, vol. xii, p. 149, 1862.) Prof. Wyville Thomson's paper (*On Distorted Human Skulls, Nat. Hist. Review*, Oct. 1862) may also be consulted.

tunates, slaves or other dependants, must have been slain at the obsequies of the chief, as a sacrifice to his manes, and probably in part eaten at the funeral feast. This last inference appears confirmed by the traces of burning presented by a few fragments of the bones. These, like others from the long barrows of Nympsfield and Rodmarton (*Cran. Brit.*, pl. 59) have been very imperfectly burnt, or rather charred; a condition quite distinct from that of the burnt bones from the round barrows, where cremation has been practised as a funeral rite, and in which the whole of the animal matter has been destroyed by long-continued incineration. These fragments seem to have been taken from a fire, at which a funeral feast was cooked, of which feast human flesh may have formed a part. That under certain circumstances anthropophagism was practised in Gaul and Britain, rests on the testimony of too many authors to be doubted;* and the older the date of any sepulchral monuments, the more likely are we to find in them traces of this practice. Pliny is speaking of Britain when he connects the eating of human flesh with a supposed benefit to health,† and is referring to the human sacrifices of Britain and Gaul when he says that the transition is very easy from sacrificing human beings to eating them.‡

Table III.—*Ancient Gaulish Skulls.*—Since the foregoing paper was written, I have had the opportunity, during a short visit to Paris, of examining and measuring the ancient Gaulish skulls in the collections of that city, and especially those in the gallery of anthropology in the Museum of Natural History,§

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* Diodorus, lib. 5, c. xxxii; Strabo, lib. 4, c. v, § iv; Hieron. *Adv. Jovin.*, lib. ii.

† Pliny, lib. 30, § iv: "In quibus hominem occidere religiosissimum erat, *maudi vero etiam saluberrimum.*"

‡ *Id.*, lib. 7, § ii. "Nuperrime hominem immolari gentium earum more solitum; quod paulum a mandendo abest." The natives of Eastern Australia often cook and eat the flesh both of friends and foes. Morrill, who resided seventeen years amongst them, testifies to "the existence of occasional cannibalism, founded rather upon a superstitious idea of embodying the virtues or physical capabilities of a deceased friend or enemy, than from any desire for unnatural food."—*Newspapers of May*, 1863.

§ I must not omit to express my best thanks to M. le Prof. Quatrefages for the ready access which he gave me to the skulls in the museum; and to M. Jacquart, for the facilities accorded me in their examination.

and in the collection of the Society of Anthropology. The measurements of as many of these skulls as are sufficiently perfect are given in Table III, in which they are arranged according to the apparent sex, and nearly in geographical order, beginning with the north of France. I have added the names of the Gaulish tribes, within whose probable limits the sepulchral remains were in each case found. It must not, however, be supposed that the skulls are necessarily those of the several peoples named, though in many instances it is not improbable that such may be the case. It is at least believed that they are not to be attributed to a later period than that of the tribes in question. Brief descriptions of each series of skulls are here given in elucidation of the table.

1. *Skulls from Noyelles-sur-Mer* (*Somme*). *Region of the* AMBIANI.—The tumulus whence these were obtained is described at p. 10, *ante*. I found four skulls in the museum marked as from this source; viz., No. 209, that described by M. de Belloguet,* and three others, Nos. 314, 315 and 317, presented by M. Boucher de Perthes. No. 315 has fallen to pieces, and 314 is very imperfect. With the exception of 317, all are more or less elongate, as stated by the original describer. This last, however, which is clearly the skull of a man, is brachycephalous (·81), and presents considerable flatness of the parieto-occipital region. There is slight post-coronal depression, and the type approximates to that of the majority of the skulls from the Orrouy cavern, described further on. It is thus seen that this supposed example of a Gaulish tumulus, with solely dolichocephalous skulls, does not stand the test of close examination.

2. *Skulls from Nogent-les-Vierges* (*Oise*). *Region of the* BELLOVACI.—This series of twelve skulls of ancient Gauls, all tolerably perfect, is one of the most important yet obtained. They were presented to the museum, in 1854, by M. Houbigant, having been obtained from a sepulchral

* *Ethnog. Gauloise*, p. 173, 1861.

"grotto" or "gallery," discovered in 1816, which was soon afterwards not very perspicuously described by M. Barbié du Bocage.* In it were as many as two hundred skeletons, a knife and axe of flint, but no object of metal. The bodies, among which there appear to have been none of infants, had been placed in layers on the paved floor of the gallery, and the whole covered with a stratum of sand. Of the twelve skulls, seven appear to be those of men and five of women, and of persons from twenty to sixty years of age. I have followed the indications of M. Serres as to the sex, except as regards No. 349, which seems to me to be that of a woman; and No. 353, which I take to be that of a man. One of these male "*Bellovaque*" skulls, No. 354, could not be found, and had been replaced on its stand by one presumed to be "Gaulish," but apparently of doubtful attribution.†

M. de Belloguet is quite correct when he insists on the great difference in the type of these skulls; but is in error in his indications as to which of them are brachycephalous, and which of elongate form. Of the six male skulls, three only (Nos. 343[1], 345[3] and 346[4]) are brachycephalous (·80, ·80, and ·85). The other three are dolichocephalous or sub-dolichocephalous (·70, ·71, 74); as is the case, also, with the five skulls regarded as female, which have the relative breadth of ·69, ·72, ·72, ·72 and ·73, respectively. The brachycephalous skulls, especially Nos. 343 and 346, are very similar in general character to the short skulls from the round barrows of the ancient Britons, and present more or less of the parieto-occipital flatness so often observed in those skulls. They differ, however, in having the face smaller and somewhat less harsh and rugged, and in the presence of slight post-coronal depression, not often seen, excepting in the dolichocephalous series of our British skulls. The form and proportions of half (three) of the men's and of all the women's skulls, closely

* *Mém. de la Soc. Roy. des Antiq. de France*, t. iii, p. 298, 1821, *avec planche*.

† This substituted skull is inscribed, "Tête probablement Gauloise trouvée avec des grains . . . . le 4 Juin 1847, par Ant. Alexandre," The skull is brachycephalous (·82), with a *length* of 185, *breadth* 152, and *height* of 130 millemeters. For these last measures I am indebted to the kindness of M. Pruner Bey.

approximate to those of the crania, which, unmixed with others of brachycephalous proportions, are found in the long barrows of Britain. Indeed, No. 353[11] of the skulls of men, and 349[7] of those of women, are unusually elongate, and almost sub-scaphocephalic. One of the skulls, believed to be that of a woman, No. 347[5], has been lithographed for this memoir, from two photographs by M. Potteau: (See Plate IV). Though not so elongate as three others, it is a good example of the dolichocephalous type of this series, in which the sexual characters are not strongly marked. In nearly all are greater or less traces of post-coronal depression, and in most the occiput is full and prominent. The frontal region in several is narrow and receding, whilst in others it is somewhat elevated. The supraciliaries and nasals are moderately prominent in most; the face is rather long and narrow, and there is a slight tendency to prognathous eversion of the lower edges of the alveolar arcade. As in our British dolichocephali, the lower jaws are short and rather small, but, as in them, the chin is generally well pronounced. In No. 347[5] (Plate IV), there are several small Wormian bones in the line of the lambdoid suture; and in No. 349[7], a single large interparietal or "epactal" bone. The sutures in these skulls, excepting only No. 353[11], are distinct and generally open. The skull excepted is that of a man far advanced in life, and, as in two or three others, has the crowns of the teeth very much eroded. The brachycephalous male skull, No. 343[1], is remarkable for having, in the centre of the left parietal, a large hole, measuring 4 by $2\frac{1}{2}$ inches, with smoothly rounded edges; showing that the individual must have lived for a considerable period after he had received a very serious wound, probably in battle.

3. *Skulls from Du Val, near Senlis (Oise). Region of the* Silvanectes.—These are the skulls from the dolmen or sepulchral gallery described at p. 20, as in the Forêt de l'Ile-Adam, believed to be within the limits of the Silvanectes, a small tribe, hemmed in between the powerful tribes of the Bellovaci and Sucssiones. M. de Belloguet speaks of three skulls only; but there are in the museum at least nine, and one entire

skeleton, derived from this tomb. The skulls are numbered 165 to 170 *d* respectively, and the entire skeleton, 1634. This last is in a case, hermetically sealed, in *Salle* 9, and is entered in the Catalogue as "*Squelette de Femme Gauloise Sylvanecte, provenant du dolmen du Val.*" A photograph (No. 799) of the skull, is exhibited in *Salle* 3, with those of other skulls, Nos. 166, 169, of the same series, by M. Rousseau; and there are still more successful ones by M. Potteau. The imperfect calvaria, No. 170, *a, b, c, d*, are mounted on a single board, with two axes, one of flint, the other of a green stone, and a vase of pottery, not of the most ancient type. The label is inscribed "*Deux silex, un vase et 4 crânes incomplet, montés sur le même plateau, et provenant du même dolmen (du Val).*" Two of the calvaria on this board, 170 *a* and 170 *b*, are too fragmentary to be measured. The others, like most of the ancient Gaulish skulls in the museum, have, as appears to me, been unfortunately mounted on stands with brass rods and screws; and apparently without being first properly cleansed and macerated in hot gelatine. They are hence falling to pieces, and are in great danger of being lost to science. The superior maxilla of No. 168 appears to have been lost during the two or three years since M. de Belloguet wrote; so that his observations as to the absence of prognathism cannot be verified. The measurements of the seven skulls show that three are brachycephalous, three ovoid, and one sub-dolichocephalous. The skulls of short or round form have much resemblance to those from the round barrows of the ancient Britons, as is well seen in the parieto-occipital flatness of No. 166. No. 167 is the skull of an old man, with edentulous lower jaw. The supraciliaries are moderately prominent; there is some post-coronal depression, and the occiput is full and broad. The most interesting skull of the series is No. 169, that of a man of about forty-five years. The nasals are prominent, and there is a slight degree of prognathism. There are indications of post-coronal depression, as well as of parieto-occipital flatness, and the form of the skull has clearly tended to brachycephalism. This, however, has been neutralised by the effects of an abnormal *synostosis* of the parietals: there is no trace whatever of the

sagittal suture beyond a certain rugosity in its course; it has probably been obliterated during the intra-uterine period. There is partial obliteration of the lambdoid, but the coronal suture is distinctly open.

4. *Skulls from Chamant (Oise). Region of the* SILVANECTES. —These are from the dolmen at Chamant, near Senlis, already referred to in the previous part of this paper (pp. 10, 14). The dolmen seems to have been very similar to the neighbouring one of Du Val;* and the skulls derived from it have an equal right to the name of "*Sylvanectes*" with those so designated by M. Serres, from the former tomb. Four skulls from Chamant, like the series next to be described from Orrouy, are preserved in the collection of the Society of Anthropology of Paris. My notes of their examination afford but few particulars in addition to those given above. Three may be those of men, with a relative breadth of ·71, ·74, and ·78; but another, which approaches the short form, and which I should term sub-brachycephalous (·78), appears to be that of a woman. All are very imperfectly preserved, and are poor, ill-developed skulls. So far as they go, they are in favour of a dolichocephalous admixture among the Gaulish brachycephali of the stone age. The teeth are much eroded; and in one, No. III, the erosion has an oblique character. The dimensions of the long bones are in favour of their having belonged to a people of short stature.

5. *Skulls from Orrouy (Oise). Region of the* SUESSIONES.— This important series of skulls was obtained from the sepulchral cavern of Mont-Maigre, near Orrouy, to the north of the Autone, a tributary of the Oise, about midway between the two towns of Senlis and Compiègne. The place is just without the limits of the little tribe of Silvanectes, and must have belonged to the great and powerful Suessiones, the tribe of Belgic Gaul,

* The dolmen is very clearly described by M. P. Broca in *Bull. de la Soc. d'Anthrop.*, t. iv, p. 652; t. v, p. 636; and the skulls in t. iv, p. 513; and t. v, pp. 5, 638. M. Broca regards two of the skulls as dolichocephalous, and two as mesaticephalous; and observes, "*L'absence probable des brachycéphales dans cette sépulture de l'âge de pierre mérite d'être signalée.*"

which gave a king, Divitiacus, to the south of Britain. In a small natural cavern,* evidently prepared as a place of sepulture, were found the remains of about fifty individuals. With them were the bones of many animals, especially ruminants;

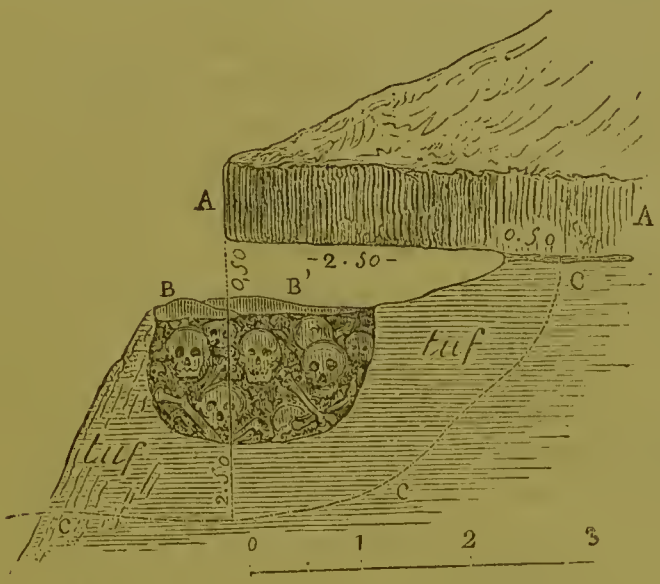

Fig. 18. *Sepulchral Cavern at Orrouy (Oise.)*

many fragments of coarse pottery, knives of chipped flint, and axes of the same, polished; and a small spoon of bronze of curious form. As, however, the exact position of this last object was not observed by the workmen, it is possible that it may have fallen into the cave subsequently to its use as a place of burial. Thus, the conclusion that the skeletons belong to the "age of bronze," may be open to some question; though as no trace of iron was found, the French anthropologists justly regard this as the most recent period to which they can be assigned. A curious circumstance, regarded by M. Broca as a family peculiarity, consists in the fossa of the olecranon being pierced by a natural hole, in eight out of thirty-four

* Described by M. P. Broca, *Bull. de la Soc. d'Anthrop.*, t. iv, pp. 510, 512; t. v, pp. 56, 450, 718: (I have not seen the conclusion of M. Broca's observations, in *fasc.* 5, p. 521). See also *Journal of the Anthropological Society of London*, vol. ii, p. clxviii, where, however, certain typographical errors should be corrected. My description of these skulls is from my own notes and measurements, assisted by others supplied to me by M. Broca, for which, as well as for copies of casts of Nos. IV, VIII, and XI, I must express my obligations.

instances in which the humerus was preserved. The skulls are represented by twenty-one, more or less, incomplete specimens, of which sixteen are susceptible of measurement. The lower jaws are of considerable size and thickness. Of the sixteen skulls of which the measurements are given in the table, ten are classed as those of men, and six as those of women. Twelve appeared to be of persons from 30 to 55, two from 20 to 25, and two of about 70 years of age. According to the classification I have adopted, as explained on a foregoing page (p. 461), two are dolichocephalous (·71), two orthocephalous (·75-·77), four sub-brachycephalous (·78-·79), and eight brachycephalous (·80-·86). Measurement thus shows a great difference in the type; though a very considerable preponderance, or 75 per cent. of the whole, are of brachy- and sub-brachycephalous form. Inspection of the skulls reveals more striking peculiarities. The two (Nos. V, VI), which are only just excluded from the extremely dolichocephalous type, are altogether similar to the elongate or ellipsoid skulls from the long barrows of Britain, and likewise resemble those above described from the Gaulish "sepulchral gallery" at Nogent-les-Vièrges, which were also associated with skulls of brachycephalous proportions; though, in the skulls which have been preserved, we have seen that those of dolichocephalous form very much preponderate. The brachycephalous skulls from Orrouy, which are well represented by Nos. IV and XI, one of each sex (casts of which have been presented to various museums), are of medium size, and differ from most ancient British and from many Gaulish brachycephalous skulls, in the narrowness of the frontal, the smaller size and comparative shortness of the facial bones, and in the more moderate prominence of the glabellæ and supraciliaries; in all of which particulars they incline towards characters proper to the dolichocephalous type of ancient British skulls. Three, Nos. IV, VII, XIV, have the frontal suture persistent; and in most there is more or less post-coronal depression.

A third form, quite extraordinary and exceptional, is presented by eight out of the entire series of twenty-one skulls. This is well shown in Nos. I, III, XII, XXI, and especially in

No. VIII, casts of which last are found in the principal museums of Europe. No one can fail to be struck with the singularly inharmonious and strange form of these skulls, and with the contrast between the small, narrow, and low frontal, and the immensely broad and full parietal and temporal regions. The prominence of the rounded temporal bosses, separated by shallow depressions from the parietal ones above, is even more remarkable than that of the latter. A dolichocephalous forehead and a very brachycephalous middle and hind head are reunited in the same specimens. Moreover, on each side, corresponding to the lower end of the lambdoid suture, there is a considerable flatness or depression. The first notion that occurs is that this bizarre form is the result of artificial deformation, and that the post-coronal, as well as the supramastoid depressions, may have arisen from a system of bandaging: in some respects, indeed, the form corresponds with that of the annular distortion (*tête annulaire*) of Gosse.* Further inspection, however, satisfies one that the peculiar form has not been caused by art; and as it is not due to synostosis,† and as, by its presence in so many instances, pathological causes are excluded, we are compelled to seek another explanation. M. Broca's first idea as to these skulls was that their form depends upon a sort of mixture of the two other types found with them; and to this view he still, and as it seems to me justly, adheres.‡ We have here, I think, a veritable hybrid form of cranium resulting from the mixture, or

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* *Déform. Artif. du Crâne.* Compare plate ii, fig. 6 (from Foville); plate v, fig. i, 3.

† There is nothing peculiar in the condition of the sutures in these skulls. In No. VIII all are open, excepting the outer fifth of the coronal, in which obliteration has commenced.

‡ "Quelques crânes brachycéphales appartiennent à la race préceltique, d'autres, dolichocéphales, à la race celtique; quelques-uns représentent une sorte de mélange." (*Bull. de la Soc. d'Anthrop.*, t. iv, p. 512.) In this passage, the more or less hypothetical terms, pre-Celtic and Celtic, are, according to my views, inverted; they are not employed by M. Broca in his more recent communication on these skulls. (*Ibid.*, t. v, p. 720.) "Le type pariétal et le type ovale existant respectivement dans certaines races, on peut supposer d'abord que la population d'Orrouy était issue du croisement de deux races, et je le nierai d'autant moins que déjà à l'âge de la pierre, antérieur à l'âge du bronze, toutes les populations de notre pays avaient subi des mélanges de races."

crossing, under certain circumstances unknown to us, of a dolichocephalous with a brachycephalous race.

The cranial form, when not influenced by disease or distorted by art, no doubt represents in a general way that of the hemispheres and lobes of the brain. The post-coronal depression, so common in dolichocephalous skulls, and which is liable to be exaggerated by bandaging, corresponds to a normal depression between the anterior and middle lobes, in the region of the fissure of Rolando; whilst the great biparietal breadth and parieto-occipital flatness common in skulls of brachycephalous type (which last is also liable to exaggeration from artificial causes), correspond to, and doubtless depend upon, the great transverse expansion of the middle and temporal lobes, and on the comparatively abbreviated proportions of the posterior lobes of the brain in the brachycephalous races. In the Orrouy skulls, we have a very inharmonious combination of both these conditions. In them, however, there is less decided verticality of the hind head than is common in brachycephalous skulls. On the contrary, there is a certain roundness and fulness of the supra-occipital, which seems to depend on the greater development of the apices of the posterior lobes, such as is proper to dolichocephalous peoples; and is especially seen in the elongate skulls from the long barrows of Britain. In the Orrouy skulls of hybrid form, two encephalic growth-tendencies appear to me distinguishable; one, the longitudinal or fronto-occipital; the other, a transverse, or biparietal and temporal one. Now, the remarkable supramastoid depressions, visible in the hindhead of these skulls, seem to be well explained by the idea of an intersection or crossing of these two tendencies in the brain-growth; corresponding, as they must have done, to the angles formed by the posterior surfaces of the middle, the lower surfaces of the posterior and temporal lobes of the cerebrum, and the upper surface of the cerebellum.

These skulls, and especially No. VIII, agree very much in form with the remarkable Totonaque Mexican skull, minutely described by M. Gratiolet. This skull, though regarded by that distinguished, (now, alas! lamented), anatomist as normal, is of

such singular form as to be compared by him to the distorted trilobed skulls (*tête trilobée* of Gosse) of the isle of Sacrificios; just as in these Orrouy skulls we find a certain resemblance to the annularly deformed skulls (*tête annulaire, tête bilobée*) so common in France.* But for the want of a more distinct longitudinal depression along the posterior part of the sagittal suture, this Orrouy skull, No. VIII, might equally with the Totonaque specimen, be compared to the trilobed form. M. Gratiolet regarded the peculiarities of the deformed skulls of Sacrificios as artificial exaggerations of original characters; proper, as he thought proved by this Totonaque cranium, to the people of eastern Mexico.

6. *Skulls from Luzarches (Seine et Oise). Region of the* Parisii.—These skulls, from a dolmen near Luzarches, are not comprised in the table, being too imperfect for measurement. They are labelled "*No.* 204. *Trois crânes incomplets, provenant du dolmen du Compans près de Luzarches; fouilles faites en* 1854, *par M. le Prof. Serres et ses aides.*"† One of the calvaria, with a slightly flat occiput, is that of a man; the other two, with the occiput full and rounded, are probably those of women. All three, as judged of by the eye, are dolichocephalous, inclining to the medium ovoid form (·73-·74). There are teeth in two of the jaws, which are much eroded.

7. *Skulls from Meudon (Seine et Oise). Region of the* Parisii.—All the skulls hitherto described and measured are from localities in Belgic Gaul, and therefore from a region of peculiar interest to the anthropologists of England, as being that

* *Crâne de Mexicain Totonaque des environs d'Orizaba.* (*Mém. de la Soc. d'Anthrop.*, 1863, t. i, p. 391, pl. x, xi.) The last plate, representing the vertical view, shows very great similarity with that of the Orrouy skull, No. VIII. A great part of M. Gratiolet's description is equally applicable to the skull now referred to, as when he refers to "la prédominance des régions temporo-pariétales, énormément dilatées et globuleuses, sur une région frontale évidemment amoindrie;" and again, to "la présence d'une vallée ou dépression transversale qui parcourt le bord antérieur des pariétaux."

† Whether the dolmen of Compans be that known by the name of "La Pierre Turquoise," between Luzarches and Beaumont-sur-Oise, of which a notice was given by M. Hahn to the *Institut Historique*, in 1854, and which is briefly described and figured by M. Carro (*Voyage chez Celtes*, p. 145, 1857), I am not certain, though this appears probable.

whence great part of the south of Britain was ravaged and afterwards colonised, previously to the Roman conquest of Gaul and to Cæsar's expedition to our island. We have now come to skulls from places to the south of the Seine, the so-called Celtic Gaul, from whence, however, the materials are unfortunately much less abundant. In crossing the Seine, from the country of the Bellovaci, Silvanectes and Suessiones, the first tribe we come to is the small but not unimportant one of the Parisii.

The two skulls from the large dolmen at Meudon, explored by M. Eugène Robert in 1845, are fully described in the preceding pages (pp. 16-20), where wood-cuts of them are given. These two skulls are still preserved by M. Robert, at his residence at Bellevue, not far from the place of their discovery; where I was favoured with the opportunity of inspecting them and of taking the measurements, which are given in the table. Casts from these skulls were presented by M. Robert to the Museum of Natural History (Nos. 356, 357), and also to the Museum of Anatomy of the Faculty of Medicine of Paris (Nos. 149, 150). By an unfortunate error, the original skulls and both sets of casts have been erroneously labelled "*Type Kimry, homme,*" and "*Type Gall, femme;*" though the male skull is, in truth, an example of the brachycephalous *Type Gall,* and the female skull of the ovoid *Type Kimri,* of W. F. Edwards.* In addition to the casts, M. Robert presented three imperfect skulls from this dolmen to the Museum of the Faculty of Medicine; where they are catalogued as "*Crânes de Celtes,*" Nos. 146, 147 and 148. The first, 146, is labelled "*Coronal de Celt, Type Kimry, homme,*" where for "Type Kimry" read "Type Gall." No. 147 consists of the frontal and two parietals of a woman, and

* I must here correct the mistake into which I have fallen (p. 3, *ante,* note), in attributing to M. de Bellogue the error referred to in the text, the responsibility for which would appear to rest with M. Serres or his assistants. In his memoir on the Meudon discovery, M. Serres writes as follows:— "Dans les huit séances (au château de Meudon) que j'y ai consacrées, secondé des deux aides de ma chaire au Muséum, MM. Jacquart et Biscard, ainsi que de M. Robert, j'ai pu constater les faits qui suivent. J'ai reconnu que ces os ont appartenu aux deux types de la race Gauloise, au type Gall et au type Kimry."

though of ovoid or elongate type, is labelled *Type Gall.* No. 148 is the elongate calvaria of a young girl, full of earth, much broken, and falling to pieces. It is the only one of these specimens correctly labelled "*Type Kimry, femme.*" In the same museum are the casts of two nearly perfect skulls, though wanting the lower jaws, from the Meudon dolmen, presented by M. le Baron Dupotet. They are catalogued as "*Moule d'une tête de Celte,*" Nos. 174, 175, and bear each the following label, "*Tête de Druide, trouvée le* 15 *Juillet,* 1845, *dans l'avenue de Meudon, par le Baron Dupotet.*" That the skulls, of which these are casts, were from the interior of the dolmen seems proved by the note appended to the memoir of M. Serres, already quoted from the twenty-first volume of the *Comptes Rendus* (pp. 3, 13). Measurements from these casts are given in Table III. No. 174 is that of the skull of a man of nearly brachycephalous proportions (·79), and has the frontal suture present. There is none of the parieto-occipital flatness which is so marked in the male skull from the same dolmen, in the possession of M. Robert. The supraciliaries are moderately prominent; the mastoids rather large; no particular depression at the insertion of the nasals; the upper maxillæ rather short; the alveolar margins slightly everted. Neither the characters of the sex, if regarded as the skull of a man, nor that of the race, are particularly pronounced. No. 175, clearly the skull of a woman, is considerably smaller, and of ovoid form (·76). It presents slight post-coronal depression; a considerable part of the left parietal is wanting; the facial characters are very similar to those of No. 174.*

These are all the skulls from the Meudon dolmen, of which, after many inquiries, I was able to hear. Whether the five well-preserved skulls which, acccording to M. Serres, seem to have been deposited at the chateau of Meudon are still at this residence of Prince Napoleon, or whether additional ones are in the possession of M. le Baron Dupotet, I could not ascertain; but if so, it is most desirable that they should be contributed

* Copies of these casts are sold by M. Vasseur, as skulls of "Druids." They are Nos. 24 and 25 of his list.

to one of the museums of Paris. It seems that of these five skulls, three were of brachycephalous and two of ovoid type.*

8. *Skulls from Bellevue* (*Seine et Oise*). *Region of the* Parisii.—M. de Belloguet refers to three skulls in the Museum of Natural History, as having been found in close proximity to the Meudon dolmen, and regards them as part of the evidence as to the ancient Gaulish skull-form. Of this series, I found as many as eight in the museum. They are mostly very imperfect, and are numbered 341, 342, 358 (being those referred to by M. de Belloquet), 371, 372, 374, 376 and 480; and there may be others, besides 370, on the crowded shelves, which I did not see. All are labelled "*Trouvé dans les fouilles faites en 7bre,* 1845, *à Meudon* (*avenue de Bellevue*), *sous le direction de M. le Prof. d'Anthrop.* (*M. Serres*)." Attached to the stands on which they are mounted are portions of coarse red tile and pottery, evidently Roman; and on one of them part of the jaw of a pig. They appear to be generally of ovoid form; but as they doubtless are of the Roman period, they need not be further described.† It was needful, however, to distinguish them particularly, as they appear to have misled the distinguished anthropologist, Professor von Baer, who, apparently regarding them as derived from the dolmen, observes, "The skulls which are exhibited in Paris as of Celtic type are dolichocephalic, being probably derived from the grave discoveries of Meudon, upon which Serres has reported. A skull from thence is depicted in the *Indigenous Races*.‡

The particular skull last referred to by Professor von Baer has obtained considerable celebrity, a fine photograph from it, by M. Rousseau, having been made the subject of a memoir, presented to the Academy of Sciences by M. Serres in 1854.§

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* "Il y a à Meudon cinq crânes assez bien conservés. Parmi eux sont deux crânes de femme du type gall, un d'homme: les deux autres appartiennent au type kimry; l'un a appartenu à un homme, l'autre à une femme." *Comptes Rendus*, t. xxi, p. 13; *Voyages en Scandinavie*, pt. ii, p. 224.

† They appear to have belonged to the "*ossements hum. dont le monument de Meudon était environné.*" *Comptes Rendus*, xxi, p. 12. *Voyages*, etc., p. 223.

‡ By Nott and Gliddon, p. 301, 1857. Von Baer, *Bull. de l'Acad. Imp. de St. Petersbourg*, p. 261, 1860.

§ *Paléontologie Humaine: Comptes Rendus*, 14 Août, t. xxxix, 1854.

A copy of this photograph is now before me, and bears the following autograph: "*Type Celt, découvert dans l'ancien parc de Madame de Pompadour,* à Bellevue, près Paris.*" The skull itself, which is No. 199 of the museum, has been unfortunately labelled, "*Gaulois de Meudon, donné par M. le Sénateur Dumas,* 1854." On the stand are portions of the jaw and thighbone of a ruminant; the skull itself is falling to pieces. The true history of this cranium is given by M. Robert.† It was not derived from Meudon, but from Bellevue, and from a spot at a considerable distance from the celebrated dolmen. It was obtained from one of several graves uncovered in 1853, in which the bodies had been laid from west to east, with the face upwards. One skull only seems to have been preserved, and this was restored by M. Robert, and by him given to M. Dumas. Not far from the graves, the workmen found numerous flint flakes, and fragments of pottery, thought to be Celtic; but the connexion of these objects with the former is quite doubtful, and the graves are probably of the Christian period. Still, no doubt the skull may be that of a Gaul of the later and, perhaps, post-Roman time; and as its form in many respects corresponds with that of the brachycephalous Gaulish skulls, I have included it in the table of measurements. It is probably that of a woman, being of the short oval form, but elevated, and inclining to the brachycephalous type, from which it departs by a somewhat round and prominent occiput. The nasals are small, and the maxillæ rather prognathous; the teeth are much eroded.

9. *Skulls from Marly-le-Roi* (*Seine et Oise*). *Region of the* Parisii.—The skull presented by M. Robert to Professor Retzius, and briefly referred to at p. 20, *ante*, was derived from a small dolmen at Marly-le-Roi, a few miles to the N.N.W. of Versailles, and probably within the limits of the Parisii or the Carnutes. I need not reproduce the description, which will

* This, no doubt, was the site of the villa built in a few months to please Madame de Pompadour, but which was pulled to pieces during the Revolution.

† *Voyages*, etc., p. 238.

be found in the original memoir, and likewise in the collected works of the late distinguished Professor Retzius. He has given a woodcut of the skull, which is of small size, and apparently that of a woman. There is some confusion and uncertainty in the measurements given by Retzius, who describes it as altogether brachycephalous.* He tells us that its form and dimensions agree very exactly with those of a skull from a chambered barrow near Stege, in the isle of Möen. A cast of this, presented by Professor Eschricht, is in the Museum of the College of Surgeons (No. 5710), where I have carefully measured it.† It is of ovoid form (·76-·77), scarcely even to be called sub-brachycephalous; and it is tolerably certain that the skull from the Marly dolmen, in the Stockholm collection, is really of the same proportions. Though neither are actually brachycephalous, they both appear to have belonged to a series and a type which were such, but from which these examples deviated towards an oval, though not dolichocephalous, form. The Stege skull has altogether the facial characters of the brachycephalous type; and the series of five skulls from that tomb have an average relative breadth of ·80 (·794); two have that of ·83 and ·85.

In the Museum of Natural History of Paris, is a really brachycephalous skull from Marly. It is labelled "*No.* 375. *Marly-le-Roi, au lieu dit 'le Champ Payen,' sous le direction de M. le Prof. d'Anthrop., Oct.* 1845. There is no proof that it was obtained from the interior of the dolmen, like that sent to Stockholm; but as it seems probable that it is ancient Gaulish, I have added it to the table of measurements. Though

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* "Le crâne vu d'en haut offre une circonférence courte, cunéiforme, ronde comme un œuf (*forma cuneato-ovata*), dont la longueur surpasse seulement la plus grande largeur d'un sixième." Retzius, in Müller, *Archiv*, p. 500, 1847; p. 111, 1858; Robert, *Voyages en Scandinavie*, pt. ii, p. 227, 1854. *Ethnologische Schriften von Anders Retzius*, p. 62, 1864. In accordance with his system, this skull was regarded by Retzius as of Iberian or Basque origin, and it is actually treated of in German by his translator, under the title, "*Ueber die Schädelform der Iberier*" (Müller, *Archiv*, *l. c.*).

† The skull itself is in the museum of the University of Copenhagen, where, with four others from the same tomb, it was measured by Dr. Barnard Davis. It is No. 16 of Table IV, appended hereto, and No. XXVIII of Table III, *Cran. Brit.*, p. 246; comp. p. 229.

it is of somewhat larger size, yet from its small teeth, maxillæ, nasals and supraciliaries, I take it to be likewise the skull of a woman.

10. *Skull from Lozerres (Seine et Oise). Region of the* PARISII. —This skull is No. 390 of the museum, and is labelled "*Crâne ancien trouvé à Lozerres, Seine and Oise, donné par M. Jomard, Membre de l'Institut, Juin* 1854." On the stand to which it is affixed, is the tusk of a boar, no doubt found with it. There are fine photographs of this skull, of the full size, by Rousseau, and others by Potteau. Though I have been unable to ascertain more of its history, I think it probably Gaulish. The glabella and supraciliaries are very prominent, and the very deeply set nasals project abruptly; the teeth are much eroded. The hind head is large, and there is some parieto-occipital flatness. The most remarkable feature is the very extensive depression of the centre of the frontal, which rivals the form of the celebrated Neanderthal skull. This has been supposed to be the result of artificial deformation.* The depression, however, is not post-coronal, as in the annularly deformed head, and is of considerable breadth and extent. But for this abnormal anterior platycephalism, the relative breadth of the skull, ·79, might have been much greater than it is.

11. *Skull from Maintenon (Eure et Loire). Region of the* CARNUTES.—I owe the measurements of two skulls, which have recently been added to the collection of the Society of Anthropology of Paris, to the kindness of M. Broca. They are from sepultures regarded as of the stone age, excavated by MM. Larry and Leguay, at Maintenon, in the department of Eure and Loire. One of the skulls is nearly complete; the other, which is quite dolichocephalous, is a mere calvarium.†

12. *Skull from Fontenay le Marmion (Calvados). Region of the* VIDUCASSES.—The skull from the remarkable chambered tu-

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* *Cran. Brit.*, p. 43: De Belloguet, *Ethnog. Gaul.*, pp. 155, 173.
† *Bull. de la Soc. d'Anthrop.*, t. v.

mulus at Fontenay, near Caen, which has been described from a cast, (p. 15 *ante*), was in 1863 presented by the Society of Antiquaries of Normandy to the Museum of Natural History of Paris, where it bears the No. 2988. The measurements in the table are from the cast.

13. *Skulls from Bougon (Deux Sèvres). Region of the* Pictavi.—These skulls, Nos. 209 *bis* and 336 of the Museum, are labelled "*Crâne trouvé en* 1843, *dans un tumulus Celtique à Bougon, donné par M. le Doctr. Teilleux.*"* The first of these skulls, probably that of a man, is most remarkable, not only for the great depression of the very retrocedent frontal, almost as marked as in the Lozerres specimen, but also for its extreme negro-like prognathism; the intermaxillaries projecting almost as in the gorilla. The very large incisors and canines are very obliquely implanted, and the crowns of all the teeth are greatly eroded. The tubercles of the upper molars resemble, in their great size, those in the jaws of Russians brought from Spitzbergen by M. Eugène Robert. The supraciliaries are remarkably full and prominent, contrasting with the very flat frontal, which makes measurement very difficult. There is slight parieto-occipital flatness, and the skull just comes within the brachycephalous division, ·80. The other skull, No. 336, is that of a woman, delicately smooth and rounded, and of elongate oval proportions, very similar to the skulls from the long barrows of England. The occiput is full; the supraciliaries scarcely at all project; the alveolar margins of the upper jaw are short, but have a slight pouting eversion, not amounting to true prognathism. When I saw this skull it was reduced to fragments, and the upper jaw was detached from the calvarium.

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* I have not seen the *Monuments Relig. Historiq. du Poitou*, § i, p. 27, 1842, where, it seems, the discovery is recorded. M. de Bellogue t informs us (p. 174), that the skulls from this tumulus are described by M. Arna lt as follows:—"Fronts droits, élevés, mais étroits, dents posées perpendiculairement, pommettes des joues peu saillantes, mentons presque rentrants, les lobes postérieurs et moyens du cerveau bien développés, ceux-ci renflés considérablement aux parties latérales inférieures. . . . . Les squelettes auxquels appartenaient ces têtes accusaient, d'après les dimensions de leurs os, une taille moyenne de 5 pieds 2 pouces."

14. *Skull from Meloisy (Côte d'Or). Region of the* Ædui.—I have not seen this skull, which is in the collection of the Society of Anthropology. It is from a dolmen, "of the stone age," at Meloisy, in the department of Côte d'Or, which has been excavated by MM. de Saulcy and Bertrand. For the measurements of this ovoid skull, I am indebted to M. Broca.

15. *Skulls from Avignon? (Vaucluse). Region of the* Cavares. —Casts of two skulls, Nos. 173 and 174, are in the Museum. All that is recorded of them, in addition to their having been obtained from the museum of Avignon, is comprised in the following words:—"*Crâne d'ancien Gaulois venant d'un Tombeau qui contenait les Lances.*" By "*Lances*," metal weapons, probably of bronze, are supposed to be intended. The first, No. 173, is quite brachycephalous (·84), and presents some parieto-occipital flatness; whilst the other is quite dolichocephalous, ·70; the difference being similar to that between the skulls from the round, and those from the long barrows of this country. Here, as in so many other instances in France, the two types seem to have been mixed in the same tomb.

16. *Skulls from the Cave of Lombrive (Ariège). Region of the* Consoranes.—Through the courtesy of M. le Docteur

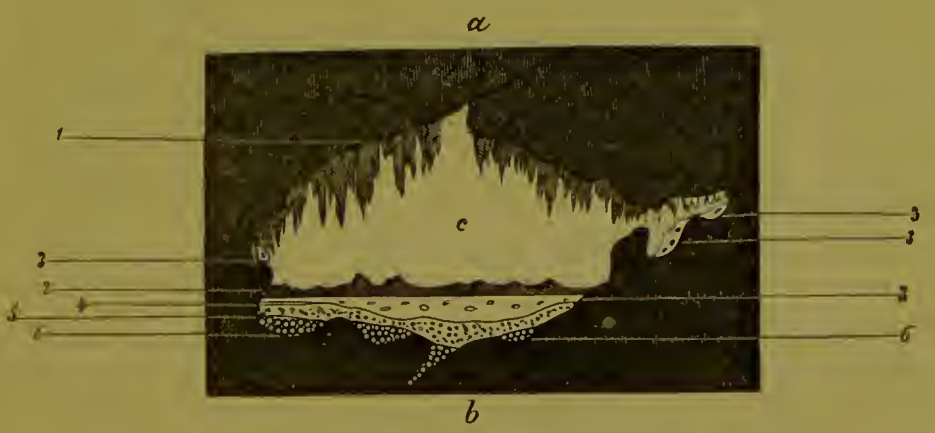

Fig. 19. *Cave of Lombrive, Ariège.*

Broca, I was shown two skulls, obtained from the cave of Lombrive, in the Pyrenees, by M. Garrigou. They were associated

and mixed with the bones of the reindeer, the aurochs and a bear resembling the brown bear, and those of other carnivorous and herbivorous animals. The teeth of a dog, perforated at

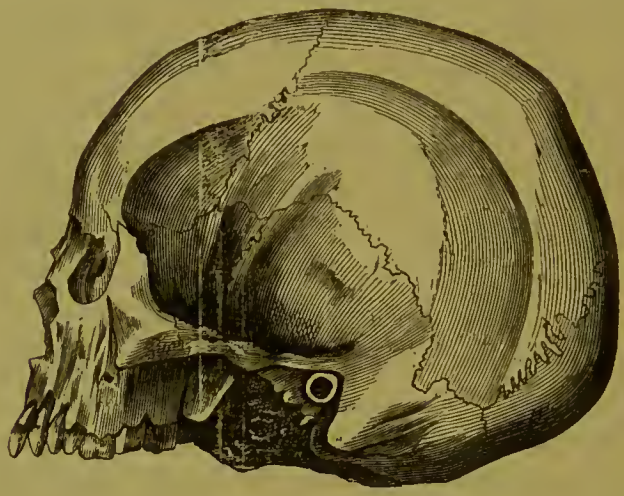

Fig. 20. *Skull from Cave at Lombrive.*

the roots, as if to be worn for an amulet or trophy, are the only traces of man's art which appear to have been met with.

Fig. 21. *Vertical View of the same skull.*

Adhering to the skulls is a quantity of bone breccia. One is that of an adult, supposed by Prof. Carl Vogt, by whom the

cave and skulls are minutely described,* to be that of a woman, the other appears to be that of a boy of about nine years. Both are clearly of brachycephalous type, though the relative breadth of that of the adult (·78, "77·7," *Vogt*), is less than that of the child (·82). Both present considerable parieto-occipital flatness. The great value and interest of these skulls must on all hands be admitted, as so clearly belonging to the *reindeer period*. There is nothing in their form to lead us to distinguish them from the skulls of brachycephalous or sub-brachycephalous type found in ancient Gaulish tombs, and in the circular barrows of the ancient Britons. Great, however, as is their probable antiquity, they belong to a period when, as Vogt observes, the cave-bear and cave hyæna had disappeared; whilst the form of the skull is totally different from the dolichocephalous form found in the Belgic-Rhenish caves. "Long periods of time," continues Prof. Vogt, "must have elapsed between the epoch when the men of Engis and the Neanderthal fought with the cave-bear, and that when the men of Lombrive hunted the rein deer. On the other hand, it is scarcely to be credited that any such period would have sufficed to produce so essential a variety in the race as the character of the skulls from the two classes of caves appears to indicate."

17. *Skulls from the Cave of Bruniquel* (*Tarn-et-Garonne*). *Region of the* TECTOSAGES.—In the large collection of remains from the cave of Bruniquel, now in the British Museum, with the bones of the rein-deer and other animals, and with implements and weapons of bone, horn and flint, are two imperfect calvaria, and fragments of human skulls imbedded in hard breccia. One appears to be part of the skull of a man, and to be brachycephalous; the other, which is less imperfect, to be that of a woman, and rather to approach the dolichocephalous form. M. Garrigou was of opinion that a lower

* *Vorlesungen über den Menschen*, 1863. Band ii, pp. 26, 168; English translation, pp. 249, 379; whence the woodcuts of the cave and principal skull are taken. See also *Bull. de la Soc. d'Anthrop.*, t. iv, pp. 174, 583; t. v. The two skulls have been recently added to the collection of the Anthropological Society of Paris.

jaw, which he extracted from this cavern, was that of a brachycephalous person of short stature.* Among the fragments at the British Museum, are portions of a skull, stained of a deep chocolate colour, and in places almost black, and which likewise bear marks of having been violently cleft and perforated at or before death (Nos. 38309, 38311). The appearance of these fragments, like others from the chambered long barrows of England, seems, I think, to warrant the idea of human sacrifices and anthropophagism.

18. *Skulls from Genthod (Geneva). Region of the* Helvetii. —These three skulls are in the possession of M. Pruner-Bey, by whose kindness I have examined them. Beautiful casts of them have been presented to the Museum of Natural History, where they are numbered 2301[1], 2303[2] and 2305[3]; the lower jaws bearing the intermediate numbers, 2302, 2304 and 2306. The following note accompanied the casts:—"*Ces trois crânes sont les types des habitants primitifs de l'Europe occidental. Ils ont été trouvés dans les cercueils en pierre sur une colline de gravier* [fifty feet in height], *près de Genthod, aux environs de Genève.*" A rude buckle and lance-head of iron were found in the tumulus, but whether in one of the kists, or nearer to the surface of the mound, I did not learn.† The skulls are of great interest. No. 2301[1] and 2305[3], both apparently of men, resemble the skulls from the round barrows; whilst 2303[2], that of a woman, resembles the skulls from the long barrows of this country. No. 2305 is a quite characteristic, brachycephalous (·81), and somewhat elevated skull. The supraciliaries are very prominent, but the occiput is not so flat as often seen in this class. No. 2301, though of the relative breadth of ·75, and therefore ovoid, is evidently only an aberrant example of the same brachycephalous type as the former.

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* *Bull. de la Soc. d'Anthrop.*, t. iv, p. 651. Professor Owen's description of the human remains from the Bruniquel cave, read to the Royal Society in June 1864, has not yet been published; so that I have been unable to profit by more than a brief report of it. *Anthropol. Review*, vol. ii, p. 226.

† I have not seen M. Pruner-Bey's volume in 4to, entitled *Der Mensch im Raume und in der Zeit*, published at Munich in 1859, in the Appendix to which is a notice of these skulls.

This is shown by its facial characters, its very prominent and projecting supraciliaries, its large and quite proguathic, deeply-indented upper maxillæ. The maudible is likewise large, and the teeth of full size, are worn and deeply jagged. The frontal is very retrocedent, and the parietals slope off rapidly towards the sides. On the other hand, there is great breadth in the intermastoid diametcr, and considerable parietal flatness, —characters of the brachycephalous type both in ancient Gaulish aud ancient British skulls. No. 2303 is of the lengthened oval or ellipsoid form (·72), with great resemblauce to the skulls of our British dolichocephali. It is smooth and well rounded, with the occiput full and prominent. The greatest breadth is in the situation of the parietal tubers. The supraciliaries hardly at all project; there is no depression at the roots of the prominent nasals; the maxillæ and maudible are small; the teeth flatly eroded.

M. Pruner-Bey being of opinion that thc difference in the type of these skulls is proof of the mixture of a "Celtic" and "pre-Celtic" race, directed the casts to be labelled in accordance with this view. Believing the brachycephalous skull, No. 2305^3, to be pre-Celtic, the label intended for it was "*Crâne arrondi* (*Ibérien, Basque*), *orthognathe.*" The dolichocephalous skull, 2303^2, being, as he thought, Celtic, the label was to have been, "*Crâne, légèrement allongé* (*Celtique*), *légèrement prognathe.*" The other, of intermediate form, he concluded was of mixed race, and its label should have been "*Crâne arrondi, légèrement prognathe* (*Métis ?*) It seems objectionable to attach hypothetical dcsignations to objects of natural history; but in this instance the mischief was exaggerated by the error of an assistant in the Museum, by whom thesc labels and designations on the skulls and in the catalogue were, in each case, applied to the wrong object, so that the meaning and intention were entirely obscured and lost.*

These are all the skulls, more or less certainly ancicut Gaulish which I met with in the museums and collections of

* See thc discussion on these casts. *Bull. de la Soc. d'Anthrop.*, t. v, pp. 295, 417, 432, 688, 1864.

Paris. There are a few so designated, which being, without histories known to me, I have not included in the table. Such is No. 329, entered in the catalogue as "*Homo Gallus Antiquus, Departement de l'Ariège, crâne donné par M. l'Abbé Siere, curé de la cathédrale de Foix,* 1852." It is the sub-brachycephalous skull of a man, of about the relative breadth of ·78; the large teeth are much eroded. Another is No. 2344, "*Tête trouvé en* 1858, *dans un Cimitière Gaulois de la Sâblonière Villiers, sous St. Leu* (*près de Prescy sur Oise* (Oise.) *Donné par M. Houbigant, de Nogent les Vierges, près Creil.*" Though brachycephalous, this skull has a very modern air, and the teeth are not at all eroded. A doubt may be permitted, whether the cemetery from which it was derived was ancient Gaulish. Another is 2997, entered in the catalogue as "*Crane ancien incomplet. Donné par M. Charma en* 1863." It is the calvarium of a woman without the frontal, and is very brachycephalous. What claim the skull 2996, in the same case with the last, and with that from Fontenay, No. 2998, has to be regarded as Gaulish, I am ignorant. It is labelled "*Tête provenant des Sepultures Gauloises de Jort* (*Calvados*) ; *Donné en* 1863 *par M. le Docteur le Grand.*" It is a most remarkable specimen of what, in his Catalogue of Skulls, Dr. Barnard Davis has termed *cylindrocephalism.* It is very abnormally elongate, narrow, and depressed, with the relative breadth as low as ·63. Having been washed, as would appear with strong size, before being cleansed, the condition of the sutures is hardly to be distinguished. A specimen closely resembling it, obtained from the catacombs of Paris, by Professor Blandin, was presented to the Society of Anthropology at the meeting of July 7, 1864,* a day or two before I examined this at the museum.

Though the measurements of sixty-one ancient Gaulish skulls are given in the table, additional materials are still much to be desired; and it is to be hoped that many opportu-

* *Bull. de la Soc. d'Anthrop.*, t. v, p. 540. This skull is not quite so elongate as that from Jort; it has a relative breadth of ·68. It is, however, more depressed, and has the height in the proportion of only ·60, to the length taken as 1·00.

nities will be found by French anthropologists for adding to their number. It may be observed, that considerably more than half of the skulls which I have described and measured, viz., thirty-eight of the sixty-one, are from the one Department of the Oise, and from tombs within a very few miles of each other, though perhaps within the limits of three of the ancient Belgic tribes,—the Bellovaci, Silvanectes, and Suessiônes. A great majority have been derived from dolmens or sepulchral caves and galleries, supposed to be of "*the age of stone.*" Very few indeed, if any, are from round barrows, such as in England, on good evidence, we assign to the *age of bronze*, and to that of *bronze and iron transition*. Of barrows of this sort, which are no doubt common enough in France, we ought to know more; and it is very desirable they should be systematically explored, in the interests both of anthropology and archæology. Could not a union for such a purpose be effected between societies devoted to these two sciences? May it not also be hoped that the inquiries and surveys—which it is understood have been made throughout France by order of the Emperor, in connexion with his *History of Julius Cæsar*—have resulted, among other things, in directing fresh attention to groups of circular and conoid barrows situated on waste and elevated plains, which might yield a rich harvest on being properly excavated? Barrows of this description should be searched for, especially in the Departments of Loire and Eure et Loire, on or near the *plateau d'Orléans*, between Orleans and Chartres. Somewhere in this district, most likely, was the celebrated *locus consecratus*, where, as Cæsar tells us, the people assembled once a year, from every part of Gaul, to meet the Druids, who decided disputes and administered justice on the spot. Around this sacred place, devoted both to law and religion, were no doubt the graves and barrows of the distinguished dead; just as in England, these are found so numerously scattered around Avebury and Stonehenge, which last, it may be concluded, was the *locus consecratus* of the later Belgæ, and the former that of the more primeval Dobunian and allied tribes.

Not only is it desirable to search for the skulls of the later Gauls, of the *bronze* and *iron periods*, in the circular barrows

which have been referred to ;* but dolmens and chambered long barrows, sepulchral galleries, caves, and grottoes, should be explored in Brittany, and in the western, central, and southern departments, for the osseous remains of the people of the *stone age*. It is scarcely to be doubted that in the Departments of the Pyrenees, Landes, and Gironde, such tombs exist, in which, as well as in circular barrows in the same district, the remains of the ancient Aquitanian tribes may be found. The examination of crania from the ancient graves of this part of France would almost certainly decide the true skull-form of the old Iberians, and with that many controverted questions in the anthropology of Gaul and of the whole of western Europe.†

So far as our knowledge of the skull-forms of the people of ancient Gaul extends, the table before us (Table IV), shows a mixture, in the same tomb, of the long and short types, such as certainly does not occur in the ancient British barrows of England. Conclusive proof of priority, in the order of succession, of a dolichocephalous race, has not yet been obtained for Gaul. On the contrary, two races—one dolichocephalous, the other brachycephalous—appear to have come into contact in that country at a very early epoch; and apparently even during the later *stone period* were more or less mixed and blended.‡ Which of the two first occupied the soil of Gaul, further researches must determine, though the presumption is in favour of its having been the dolichocephalous, as was clearly the case in Britain.

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* Those who excavate these round barrows in search of skeletons, must be prepared for many disappointments. Cremation was the fashionable but not uniform accompaniment of burial in the bronze and iron periods, both in Gaul and Britain. In the south of England, several barrows may be opened in succession before finding a single unburnt skeleton. The excavations in ancient British barrows substantiate the views of M. Leguay, as to the simultaneous practice of cremation and simple sepulture, in those of Gaul. *Bull. de la Soc. d'Anthrop.*, t. v, p. 318.

† Most important aid may be rendered in the prosecution of this object by the Society of Anthropology of Madrid, which has been lately founded under the presidency of M. Velasco.

‡ In this conclusion I am happy to find myself in accord with M. Broca. *Bull. de la Soc. d'Anthrop.*, t. v, p. 561. "Nos musées, quoique pauvres sous ce rapport, renferment cependant déjà la preuve que, pendant toute l'ère celtique, la population de la France se composait à la fois de brachycéphales et de dolichocéphales."

The table of measurements shows an average relative breadth such as might have been expected, with a mixture of skulls of dolichocephalous and brachycephalous proportions in the same series. The *cephalic index* stands at ·78 for the skulls regarded as those of men, and at ·75 for those of women. This difference not only accords with the rule of the female skull being usually of a longer oval form than the male,* but may possibly imply that the brachycephalous people were the intruders, who obtained for themselves wives among the more ancient dolichocephalous population. This may be the more probable from finding that the difference in the mean relative breadth in the two sexes depends much more on a difference in the proportion in which skulls of dolichocephalous and brachycephalous type enter into the two series, than on the greater dolichocephalism or brachycephalism of the individual skulls.

Ancient Gaulish Skulls.		Men.		Women.		Both Sexes.	
I. Dolichocephali.	(·69—·71)	5	·14	3	·12	8	·13
Sub-dolichocephali.	(·72—·73)	..	..	10	·40	10	·163
II. Orthocephali.	(·74—·76)	9	·25	3	·12	12	·20
Sub-brachycephali.	(·77—·79)	5	·14	5	·20	10	·163
III. Brachycephali.	(·80—·86)	17	·47	4	·16	21	·343
		36	1·00	25	1·00	61	1·00

Thus, of the thirty-six male skulls, twenty-four or two-thirds, are, according to the method explained above (p. 51), brachycephalous or sub-brachycephalous; whilst of the twenty-five female skulls, nine or about one-third only, are to be so classed. On the other hand, of the male skulls, five or one-seventh only, are dolichocephalous; whilst of the female, thirteen or as many as one-half, fall under this category. This is shown by the above analysis; to which columns, showing the relative proportions per cent., have been added.

* "The male skull is separated by typical differences from the female, in a higher degree than many so-called typical forms differ from the normal, or than many race-skulls differ from each other. Mean numbers, as hitherto deduced from skulls of different sexes, are of very limited value. . . . . The female skull is not only smaller, but is in a higher degree dolichocephalous and prognathic than the male." (Welcker, *Wachsthum und Bau.*, p. 141.) "Between the two sexes of the same species differences may and do exist, greater than between the same sexes of different species.—I shall keep to the male sex." (Vogt, *Vorlesungen*, b. i, s. 226.)

Table IV.—*Ancient Scandinavian Skulls.*—These skulls, and the megalithic or "Giants' chambers" whence they were obtained, have been briefly described, at p. 10 *ante*. The chambers have a considerable resemblance to many of those in the south-west of England; and like them appear to be of the *stone age;* as, so far as known, no objects of metal have in any instance been found in them. The skulls derived from them are not, as in this country, of exclusively elongate type, but have a preponderating brachycephalous character; though, as in the dolmens and sepulchral chambers hitherto examined in France, there is an admixture of the two types. The dolichocephalous intermingling, however (as will appear on a comparison of Tables III and IV), is much less considerable. These ancient Scandinavian skulls are known to us in this country through sketches and measurements taken by Mr. Busk, which he communicated to Professor Vogt; and also by the extensive series of measurements by Dr. Barnard Davis, given in *Crania Britannica.** This table comprises forty-six skulls; thirty-three of which are regarded as those of men, and thirteen as those of women. Some are from Sweden; a few from tombs the nature of which is not stated; and three are from peat mosses.

In my abbreviated table, I have confined myself to twenty-eight skulls from well-known stone-chambers in the Danish islands of Falster and Möen. That of Borreby in Falster, which contained "only stone implements," and had a gallery measuring twenty-seven feet in length, afforded the remains of sixty-two bodies. The thigh-bone of one measured 22·3 inches, or about 566 millimeters, indicating a man of great stature. These ancient brachycephali, like those of the British bronze period, seem to have been by no means a stunted race like the Lapps. The form of one of the large series of skulls, No. II, is well known from the comparison instituted by Mr. Busk and Professor Huxley, between it and the celebrated Neander-

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* Vogt, *Vorlesungen*, 1863, b. ii, s. 117, 160, 172, English ed., pp. 337, 372, 384. *Cran. Brit.*, pp. 225, 229, Table III, 246.

thal skull.* Of another, No. IV, casts have been taken, one of which I have examined in the Museum of Anatomy at Oxford. The small isle of Möen seems to abound with these large chambered tombs. It is nearly thirty years since two of these at Byen, near Stege, were opened by M. Hage, and yielded five skulls, which are in the University Museum at Copenhagen. One of the number was particularly described by Professor Eschricht,† by whom a cast was presented to the Museum of the College of Surgeons.‡ The three skulls from the Udby chamber are, with those from Borreby, in the Museum of Northern Antiquaries at Copenhagen. With the skeletons "only stone and bone implements were found." A cast of the first of these skulls (No. 14 of Table IV) may be seen in the Museum at Oxford. To the measurements of the skulls already named, I add those of one other from a chambered barrow at Magleby, also in the isle of Möen, which has been explored by M. Boye.§ In the stone chamber, which was about sixteen feet in length and five in height, and had an opening to the east, were the remains of many bodies, which had been deposited in the sitting posture around the walls; and, with them, as many as fourteen beautifully made stone axes, wedges, chisels and spear-heads, more than sixty flint flakes, a few amber beads, and some fragments of pottery. The stone implements and one of the skulls are in the collection of Mr. J. Lubbock, F.R.S., to whose kindness I am indebted for these particulars.

The much smaller number of dolichocephalous skulls mixed with those of the prevailing brachycephalous type, as compared with those found in the ancient Gaulish tombs, will appear on a comparison of the following analysis with that given on p. 507. Whilst in the latter only about half are brachycephalous or

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* Lyell, *Antiquity of Man*, p. 86, fig. 5, 1863. Huxley, *Man's Place in Nature*, p. 158, 1863.

† *Dansk Folkeblad*, No. 28, p. 109, Sept. 1837; see translation by Prichard, *Researches*, vol. iii, p. xvii.

‡ It is No. 5710, and has been already referred to in connexion with the Gaulish skull from Marly, *ante*, p. 86.

§ *Annaler for Nordisk Oldkyndighed*, p. 202, 1858. Lubbock, *Prehistoric Archæology*, p. 99.

sub-brachycephalous, in the Scandinavian skulls of the stone age three-fourths are of these proportions. Not a single skull is absolutely dolichocephalous, whilst thirteen per cent. are so in the Gaulish table. Only three, or 10·7 per cent., are sub-dolichocephalous, to set against the 29·3 per cent. in these two categories in the table of Gaulish skulls.*

Ancient Scandinavian Skulls.		Men.		Women.		Both Sexes.	
I. Dolichocephali.	(·69—·71)	..	..	..	..	..	..
Sub-doliehocephali.	(·72—·73)	2	·10	1	·125	3	·107
II. Orthocephali.	(·74—·76)	3	·15	1	·125	4	·143
Sub-braehyeephali.	(·77—·79)	6	·30	2	·25	8	·286
III. Brachycephali.	(·80—·86)	9	·45	4	·50	13	·464
		20	1·00	8	1·00	28	1·00

The ancient Scandinavian skulls are smaller than those of the ancient Britons of the round barrows; with the measurements of which, in the the second division of Table I, they may, notwithstanding, be compared, as having a great general correspondence with them. The Borreby skulls are, however, decidedly larger than those from the chambers in the Isle of Möen, which are unusually small. There is a difference of seven-tenths of an inch, or seventeen millimeters, in the average circumference of the thirteen skulls of men from Borreby, and that of the seven from Möen. The ruggedness and massiveness of the facial characters correspond very much with those of our British round-barrow type. The strongly marked supraciliary ridges in the Borreby skull, No. II, almost rival those in the skulls from Acklam, Ballidon Moor, and Kennet Hill.† This last, moreover, in the flatness of its frontal, approaches to the platycephalism which induced Mr. Busk and Professor Huxley to compare the Borreby skull with that of Neanderthal. The deep naso-frontal notch, the length

* The result would be nearly identical if the larger series, given in Table III of *Crania Britannica*, were analysed. It may be observed, that the measurements of the Borreby skulls, which Mr. Busk has been good enough to show me, give, in several instances, a somewhat more brachycephalous proportion than do those of Dr. Barnard Davis. According to both, however, it results that out of thirteen skulls of men, there are seven with a relative breadth of ·80 and upwards. Comp. Vogt, b. ii, s. 174, Eng. ed., p. 385.

† *Cran. Brit.*, Plates IX, 31; XVII, 1; XXIII, 11.

of the superior maxillaries, and the tendency to prognathism which these ancient Scandinavian skulls exhibit,—all corre-

Fig. 22. Skull from Stone-Chamber, Borreby.

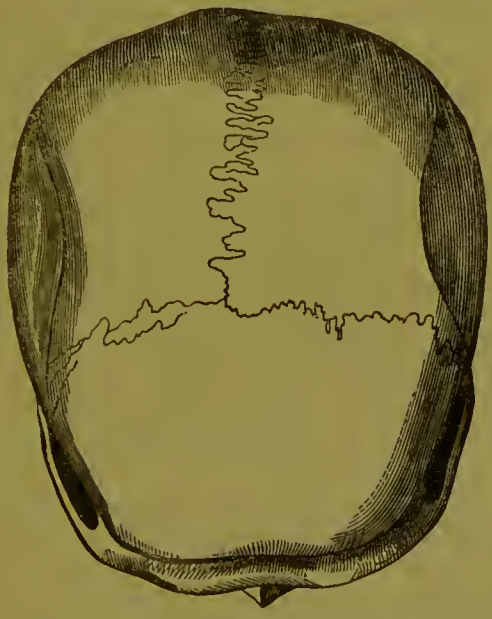

Fig. 23. Vertical View of the same Skull.

spond with what is seen in the ancient British brachycephalous

type. As Professor Vogt observes, in these last characters they differ entirely from the skulls of modern Lapps, who are strictly orthognathic. As regards facial characters, they correspond more with the skulls of true Finns,* which by their brachycephalous type and their rugged macrognathic characteristics, approach more closely to the ancient British type than perhaps any other class of skulls.† I must confess that the correspondence between the skull-form of the ancient brachycephalous Briton, Gaul and Scandinavian, and that of the modern Finn, so very much exceeds any differences which may be traced in them, that I should have no difficulty, on sufficient evidence, in admitting their common parentage and descent.

It is high time to draw to a conclusion this paper, already too much extended.‡ A few remarks will be allowed. The first point I regard as established has reference to an observation of Professor Von Baer, who, in one of his latest memoirs, observes, that the Neanderthal skull "might be taken for a Celtic or a Cimric one,§ though with a quite exceptionally strong development of the supraciliary arches and flatness of the forehead, until further proof be obtained of the existence of a European primeval people with long drawn out, and at the same time large skulls. . . . But until this proof be obtained, the brachycephalism which we find in the Basques, Rhætians, Lapps, etc., appears to me of all the quite ancient European head-forms, the only one fully proved."‖ The dolichocephalous skulls from the long barrows of Britain appear

* Vogt, b. ii, s. 119. Comp. p. 160, 172.

† The figure of the Finn skull (No. 1537 in the Morton collection) given by Dr. Meigs in Nott and Gliddon's *Indigenous Races*, p. 285, and in his *Catalogue of Human Crania*, and that given by Retzius (*Ethnologische Schriften*, Taf. iii, fig. 3), might well stand for those of ancient brachycephalous Britons. See Dr. D. Wilson's remarks on these Finnish skulls in his *Physical Characteristics of the Ancient and Modern Celt of Gaul and Britain; Canadian Journal*, Nov. 1864; *Anthrop. Review*, vol. iii, p. 78.

‡ I was the more anxious to express my views on the ancient British skull-forms from having had no adequate opportunity of doing so in the pages of *Crania Britannica*. It may have been as well, not to have combined in the same work views hardly, or not at all, capable of being reconciled.

§ *On an Ancient Skull from Mecklenburg*, quoted *ante*, p. 124, *note* †.

‖ This opinion is that entertained by M. Pruner-Bey, who designates it "the long-headed Celt of Neanderthal." *Bull. de la Soc. d'Anthrop.*, t. iv, p. 318. According to Prof. Huxley's measurements, this skull has a relative breadth of ·72; that of Engis, one of ·70. (*Man's Place*, p. 127, 142.)

to me to afford the proof required by the venerable northern Professor. Ten years ago, when, in conjunction with a friend, I reopened the chambered long barrow of Uley, the evidence in favour of a primitive dolichocephalous people in Britain was of the most meagre and inadequate description.* But since then, the number of long barrows which from time to time have been opened by myself and others, and all of which have yielded skeletons with "*long drawn out skulls*," has been so great that it is hardly possible to resist the conclusions obviously to be deduced from them. It would not be safe to attach any great importance to a coincidence of form with any single example, however remarkable or celebrated. It may, however, be observed, that our dolichocephalous British skulls have not only the elongate proportions of the Neanderthal calvarium, but that many of them have its other characteristic of a low and more or less depressed forehead. It was this character which, in the second decennium of the century, attracted the attention of Sir Richard Hoare in two or three skulls found by him in the chambered barrow at Stoney Littleton, Somersetshire. These skulls "appeared to him to be totally different in their formation from any others which his researches (viz., in the round barrows) had led him to examine: being '*fronte valde depressa.*'"†

In the first part of this paper, written more than a year since, I occasionally use the terms *Celtic* and *pre-Celtic*,—the former as applicable to the brachycephalous *skulls* of the ancient Britons of the round barrows, who, on historical and linguistic evidence, were inferred to be Celtic; and the

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* As regards the long barrows, we then had, in the Museum of Guy's Hospital, the two long skulls obtained from Uley some years previously, and a few skulls in the Bateman collection, from barrows, the form of which was not very clearly described. There were also the skulls from Scotland, adduced by Dr. D. Wilson in 1851; as to which, however, writing in 1856 (*Cran. Brit.*, p. 55), I was constrained to observe, that "the data seemed altogether inadequate to the conclusions, even suggestively deduced from them."

† *Archæologia*, vol. xix, p. 47, 1819. I succeeded in finding the fragments of the skulls referred to by Sir Richard Hoare, in the Museum of the Philosophical Institution at Bristol, and I have briefly described them, *Cran. Brit.*, Pl. xxiv, 5; p. (6).

latter as applicable to the dolichocephalous skulls from the long barrows of the stone period, who, it was suggested, might be of Iberian origin. The repeated discussions which, during upwards of a year, have taken place in the meetings of the Society of Anthropology of Paris,* have convinced me that it is desirable, as referring to craniology, to discontinue the use of these designations. The hope of any agreement as to a true Celtic skull-form seems more distant than it was fifteen years ago, when the now venerable Professor Nilsson assured me that "nothing was more uncertain and vague than the denomination *Celtic cranium*, for hardly two authors have the same opinion in the matter."† I have been accustomed to regard it as definitely proved, by the researches of late years, that the true skull-form of the bronze and iron age in Britain, and inferentially in Gaul, was brachycephalous, and was that of the Celts of the historical period. I further concluded, that the question as to "the form of the Celtic skull," which I propounded for examination many years ago,‡ was satisfactorily disposed of. But the opinion, largely diffused through the writings of Retzius, and which still finds an ardent advocate in M. Pruner-Bey, and a more cautious supporter in Professor von Bäer, is no doubt in favour of the Celtic skull being ovoid or dolichocephalous. I believe, however, we may ask in vain for a series of ancient dolichocephalic skulls from tombs which, on satisfactory archæological grounds, can be assigned to the immediately pre-Roman, and therefore to the Celtic period, either in England or in France.§

When, again, we examine the existing populations who speak Celtic dialects, and may be regarded as the representatives, no

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* *Bull. de la Soc. d'Anthrop.*, t. iv and v, *passim*. The various and distinct significations given to the term are defined by M. P. Broca, as 1, the Historical; 2, the Linguistic; 3, the Archæological; and 4, the Craniological. *Ibid.*, v, p. 457.

† *Cran. Brit.*, p. 17. See the observations of Professor Eeker, *Crania Germaniæ*, p. 11, 1863.

‡ *Ibid.*, p. 55. In this passage, written more than eight years since, I expressed the method in which my researches had long been conducted.

§ An Aryan, or so-called Indo-European immigration from central Asia into Europe, must still be regarded as a hypothesis. So far as I am aware, no sufficient proof has yet been obtained from the remains in tombs, of the advent in great numbers of such a people, having the orthocephalic or ovoid skull-form, which is assumed by those who advocate this hypothesis.

doubt more or less mixed, of the ancient so-called Celts, we find a great diversity. In western Ireland, where the Gaelic-speaking people are presumed to exist in the greatest purity, the observations of Sir W. R. Wilde* and Dr. J. Barnard Davis† concur in representing the skull-form as dolichocephalous; to which the latter adds, that it is somewhat low and depressed. In Wales, the modern representatives of the Cymric-speaking Britons have skulls with "an inclination to brachycephalism," and "a great resemblance to the crania of the ancient Britons."‡ It appears to me to be worthy of inquiry, whether these two peoples are not, in truth, the descendants and representatives, the latter of the people of the Round, the former, of those of the Long barrows. Such a duality would harmonise with that of the same peoples, founded on linguistic considerations and on the etymology of topographic names, formerly advocated by Edward Lhuyd, and which has recently found an able defender in Sir Gardner Wilkinson.§ In Brittany, the Cymric-speaking people of France, appear to possess a skull-form which, like that of the Welsh, inclines to brachycephalism.

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* *Ethnology of the Ancient Irish.*

† *Cran. Brit.*, p. 200. It may be worthy of notice, that the long and depressed skulls which have been found by Professor Vogt in the Canton of Berne,—one of which he compares to that from Neanderthal,—are by him traced to Ireland, and to the Christian missionaries from that country. There seems to be some doubt as to this attribution; and we may in any case demur to the fanciful name of "Apostle skulls," by which Prof. Vogt designates them. *Vorlesungen*, Eng. ed., pp. 299, 306, 375.

‡ *Ibid.*, pp. 204, 205. An excellent observer, Dr. Arthur Mitchell, distinguishes two types in the highlands of Scotland, which it might be easy to reconcile with the view suggested in the text. Without quoting all the characteristics, it may be observed, that the head of the one is described as "rather round and short;" and that of the other as "longish, not broad, with prominent occipital region." This last type is designated by Captain Thomas as that of "the Spanish Celt." *Ibid.*, p. 210.

§ *Ibid.*, pp. 137-140. If the ancient Gaulish language should turn out to be more nearly represented by the modern Irish or Gaëlic, than by the Welsh or Cymric, as contrary to the general opinion has been thought by Grimm and Pictet, and more recently by Mr. D. W. Nash (*Philol. Soc.*, Feb. 17, 1865), it might, perhaps, be more easy to connect the modern Irish physical type with that of the ancient Iberians, through an early so-called pre-Celtic type from Gaul; supposing both of the last to have been dolichocephalous. After all, we must remember with Humboldt, that "languages give but feeble probabilities in Anthropology." As M. Pouchet observes, "The unity of a family of languages is not always sufficient to establish that the people who speak these idioms are of one and the same origin; we can only conclude from it that they have been in relation one with the other." *Plurality*, etc., Eng. ed., p. 144.

Such, at least, is the type of one series of Breton skulls, in the Museum of Natural History of France (*Salle Cuvier*); though in another series, more recently added, the form is more ovoid.* In both the facial characters are massive and rugged, like those of the British brachycephali; they are likewise macrognathic, with a slight tendency to prognathism.

As, then, the skulls of the modern Celtic-speaking peoples, as well as those from two classes of ancient British tombs, present two distinct types, it is difficult to justify any longer the use of the term *Celtic skull;* which conveys no distinct idea, unless when accompanied by a definition, which will always be liable to vary with the individual by whom it is employed. In place of this vague term, it would be better to speak of the skulls of the Bretons and the Welsh, of the Irish and the Scottish Highlanders, as the case may be; or if we are dealing with ancient skulls, to designate them as of the stone, bronze, or iron age; from round, or from long barrows; from dolmens, cromlechs, or cists, with such geographical indication,—from Gaul, Britain or Ireland,—as may be required in each instance.

In Britain we have proof, I think, of a succession of two distinct primitive races in pre-Roman times,—the dolichocephalous being the earliest of the two; but as to France, we may say—"the further we go back, the greater is the contrast between individual types, the more opposed are the characters,—the most decided long-heads immediately by the side of the most decided short-heads."† The writer, however, of these words uses them, not of the historic or immediately pre-historic times, or of the men whose bones are found in dolmens and barrows; but of a different geological period, and of the

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* Even of this series, claimed as dolichocephalous by M. Pruner-Bey (*Bull. de la Soc. d'Anthrop.*, t. v, p. III, Tab. 2*me*, *note* 1), the mean relative breadth assigned by that eminent craniologist to eleven skulls is ·776, which is a sub-brachycephalous proportion. To obtain even this figure, the more brachycephalous skulls were rejected.

† Vogt, *loc. cit.*, b. ii, s. 285. These words are used by their author in a general sense. Above, I have applied them especially to France, and to the comparatively modern period of the dolmens and sepulchral chambers.

osseous human remains found in caverns, which of late years have attracted so much attention. Only a few weeks since, in a small cave, of the *rein-deer* period, at Furfooz, near Dinant in Belgium, MM. Van Beneden and Dupont have found two very perfect skulls, which we were told are of "two distinct races." One of these skulls was stated to be "decidedly brachycephalous and prognathous";* from which it might have been inferred that the other was dolichocephalous, like that from the Engis cavern near Liege. Such, however, is by no means the case, as shown by the more complete description and figures which have since been published.† The difference which the two skulls present is by no means incompatible with their being of one and the same race. One, perhaps that of a woman, is decidedly prognathous, and also considerably more elevated, and of somewhat squarer form than the other. They appear, however, to be equally brachycephalous, having a relative breadth of upwards of ·80.

The continental anthropologists appear disposed to assign a dolichocephalous type of man to the earliest geological epoch with which human remains have yet been connected,—that called the *post-glacial period*, in the caverns of which are found the remains of the great extinct pachyderms and cave-bear.‡ To this epoch are referred the skulls of Neanderthal

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* Letter of M. Van Beneden to Mr. J. Lubbock, F.R.S., *The Reader*, Jan. 7, 1865.

† *Les Ossements Humains du Trou du Frontal*, par M. P. J. Van Beneden et M. Ed. Dupont. *Bull. de l'Acad. Roy. de Belg.*, 2 *sér.*, *t.* xix, *No.* 1, p. 29, Pl. I, II. Though these skulls cannot be accepted as belonging to two races, all praise must be conceded to these worthy representatives of a Schmerling, for the careful details with which the narrative of their discovery is accompanied, and for the cautious spirit in which it is framed. "Pour le moment," say they, "nous l'avouons franchement, ce n'est pas une lumière que nous apportons pour éclaircir l'histoire des premiers habitants de notre sol; c'est, au contraire, un doute de plus que nous introduisons dans la science." The skulls were exhibited at the meeting of the Society of Anthropology of Paris, Feb. 23, 1865, and will, no doubt, be described in the *Bulletin* (t. vi) of that day's proceedings. With the human remains, and with those of the rein-deer and other animals, the only works of art found, consisted of chipped flints and of bone.

Further discoveries are at the present moment being made in the caves near Dinant. The skulls, said to resemble those from Borreby, exhumed at Furfooz, by J. Jones, Esq., F.G.S., on March 18th, are to be presented very shortly to the Anthropological Society of London, in connexion with a memoir on these caves by M. Alfred Becquet.

‡ *Bull. de la Soc. d'Anthrop.*, t. v, p. 416.

and Engis: the former, doubtless that of a man, the latter, supposed by Professor Vogt to be that of a woman of the same race. But with the deposits in the caverns of the *reindeer period* in the Pyrenees, and other parts of France, which are much more modern, and which contain the remains of a fauna by no means extinct, though no longer existing in this part of Europe, the case is said to be different. The more complete skulls hitherto obtained from these caverns, as for example, those from the cave of Lombrive, already described (p. 499, *ante*), are brachycephalous.* As Professor Vogt observes, "the skulls of Lombrive belong to a race differing entirely from that of the Belgic-Rhenish caves. All the characters are so opposed, that a descent of the Lombrive skulls from those of Engis, or any relationship even between them, cannot be thought of."†

The facts at present known, in connexion with this subject, appear altogether too few to warrant any certain deductions; such, for example, as those very lately propounded by Professor Spring of Liége.‡ A much greater number of these cave-skulls must be obtained under circumstances favourable for precise verification, before any such conclusions may safely be relied upon. Still, it is not a little interesting to find that modern scientific speculation and research tend towards the proof of the existence of two distinct races of men—the one with long, the other with short heads—from the very earliest

* So also are said to have been those found by Professor Spring in the cavern of Chauvaux in Belgium, though the published details are not very precisely given. (*Bull. de l'Acad. Roy. des Sc. Lett. et Arts de Belgique*, t. xx, 3, p. 427, 1853. Vogt, *loc. cit.*, p. 344. *Bull. de la Soc. d'Anthrop.*, t. v, pp. 263, 333.) As we have just seen, the two skulls from the Furfooz cave are also brachycephalous.

† Vogt, *loc. cit.*, b. ii, s. 171. In these early ages, it is maintained, that races existed as distinct in form as Negroes and Europeans are at present. Upon which Prof. Vogt observes, "that though the short-heads might be deduced from Asia, this could not apply to the narrow-heads, which claim the highest antiquity, as no such heads are there found" (p. 391).

I have referred freely to this work, which is one of great interest, but which it is much to be regretted is disfigured by cavillings on subjects usually held sacred from scorn, which have little real connexion with the questions under discussion, and must give just offence to a large class of readers.

‡ *Bull. de l'Acad. Belgique.* See abstract in *The Reader*, p. 227, February 25, 1865.

times, and since the last great geological revolution which affected the distribution of land and water in north-western Europe.

I conclude with an interrogation. Is it not probable that the long and short skulls found in the two classes of the most ancient tombs of England, which have occupied so much of our attention, are the direct and but slightly modified descendants of those truly primeval long-heads and short-heads whose remains, from time to time, are found in the bone-caves of western Europe, in England, Belgium, Germany, France, and the Spanish peninsula ?

For a satisfactory answer, Time must be afforded; and, in words which were employed by the Father of Medicine with a different application, we may exclaim,—"Life is short, and art long, the occasion fleeting, and judgment difficult."